



User Manual

Wireless AC1200 Dual Band Gigabit Router

DIR-860L

Preface

D-Link reserves the right to revise this publication and to make changes in the content hereof without obligation to notify any person or organization of such revisions or changes.

Manual Revisions

Revision	Date	Description
1.0	March 28, 2013	• Initial release

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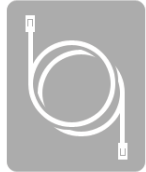
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Package Contents



DIR-860L Wireless AC1200 Dual Band Gigabit Router



Ethernet Cable



Power Adapter



Wi-Fi Configuration Note

If any of the above items are missing, please contact your reseller.

Note: Using a power supply with a different voltage rating than the one included with the DIR-860L will cause damage and void the warranty for this product.

System Requirements

<p>Network Requirements</p>	<ul style="list-style-type: none"> • An Ethernet-based Cable or DSL modem • An 802.11 ac (draft), n, g, b, or a wireless adaptor, or an Ethernet port
<p>Web-based Configuration Utility Requirements</p>	<p>Computer with the following:</p> <ul style="list-style-type: none"> • Windows®, Macintosh, or Linux-based operating system • An installed Ethernet adapter <p>Browser Requirements:</p> <ul style="list-style-type: none"> • Internet Explorer 7 or higher • Firefox 3.5 or higher • Safari 4 or higher • Chrome 8 or higher <p>Windows® Users: Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.</p>
<p>mydlink Requirements</p>	<ul style="list-style-type: none"> • iPhone/iPad/iPod Touch (iOS 3.0 or higher) • Android device (1.6 or higher) • Computer with the following browser requirements: <ul style="list-style-type: none"> • Internet Explorer 7 or higher • Firefox 3 or higher • Safari 5 or higher • Chrome 5 or higher <p><small>iPhone, iPad, and iPod touch are registered trademarks of Apple Inc. Android is a trademark of Google, Inc.</small></p>

Introduction

The D-Link Wireless AC1200 Dual Band Gigabit Router (DIR-860L) comes equipped with four Gigabit ports to provide speeds up to 10x faster than standard 10/100 ports. It also uses 802.11ac (draft) technology with multiple intelligent antennas to maximize the speed and range of your wireless signal and significantly outperform 802.11n devices. With the addition of Intelligent Quality of Service (QoS), data streams are separated, helping to organize and prioritize your network traffic so that your video streaming, gaming, and VoIP calls run smoother over both your wired and wireless network.

The DIR-860L supports a host of cloud features including QRS Mobile, which allows you to set up and configure the router using a mobile app. You can set up your router right from your sofa, without requiring a computer.

The Wireless AC1200 Dual Band Gigabit Router is also mydlink-enabled, which gives you access to your home network no matter where you are. Now you can monitor and manage your home network right from your laptop, iPhone®, iPad®, or Android™ device. mydlink-enabled routers can be configured to send an email to keep you informed anywhere, anytime when new devices are connecting to your network or unwanted access is detected. Monitor in real-time websites that are being visited with recent browser history displayed on the mydlink™ Lite app – great for parents.

SharePort Mobile technology lets you take advantage of the USB 3.0 port found on the back of your DIR-860L. Plug in a USB storage drive and you can use the SharePort Mobile app for iOS and Android to access files, stream videos, view photos, or listen to music on your laptop or mobile devices. Plug in a printer and you can use the SharePort Mobile Plus app to share that printer with all of your devices.

The DIR-860L Wireless AC1200 Dual Band Gigabit Router provides incredible speeds, smart antenna technology, fast ports, cloud features, and terrific security features. It also features an innovative design and easy installation options.

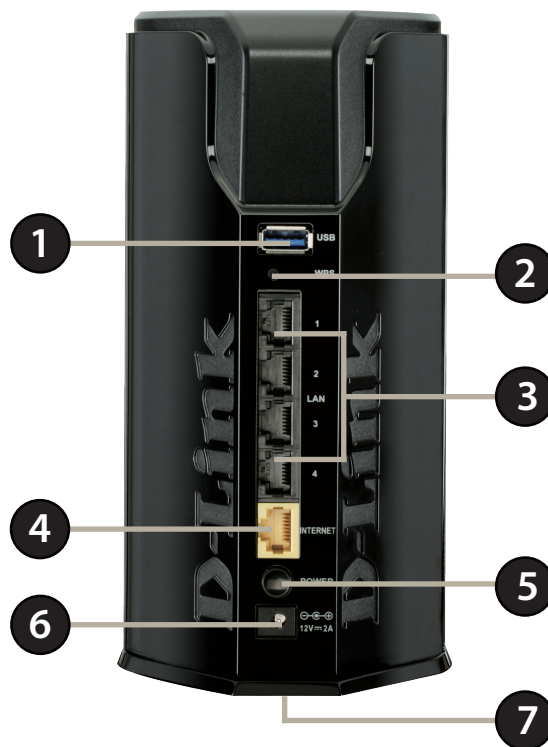
Features

- **Faster Wireless Networking** - The DIR-860L can provide up to a full 1750 Mbps* wireless connection with concurrent 801.11ac and 802.11n wireless clients . It also operates on both the 2.4 GHz and 5 GHz bands, to allow separation of traffic so users can participate in high-bandwidth activities, such as video streaming, online gaming, and real-time audio, without affecting low-priority traffic like email and web surfing.
- **Cloud Features** - The DIR-860L support the QRS Mobile app to setup the router using a mobile device. It is also mydlink-enabled so you can remotely access and manage your DIR-860L from a mobile device. SharePort Mobile can be used to share files, stream videos, view photos, and play music. SharePort Plus lets you share a printer.
- **Compatible with 802.11a/b/g/n Devices** - The DIR-860L is still fully compatible with the 802.11n, IEEE 802.11g and 802.11a standards, so it can connect with existing 802.11n, 802.11g, 802.11b, and 802.11a wireless devices.
- **Advanced Firewall Features** - The Web-based user interface displays a number of advanced network management features including:
 - **Content Filtering** - Easily applied content filtering based on MAC Address, URL, and/or Domain Name.
 - **Filter Scheduling** - These filters can be scheduled to be active on certain days or for a duration of hours or minutes.
 - **Secure Multiple/Concurrent Sessions** - The DIR-860L can pass through VPN sessions. It supports multiple and concurrent IPsec and PPTP sessions, so users behind the DIR-860L can securely access corporate networks.
- **User-friendly Setup Wizard** - Through its easy-to-use Web-based user interface, the DIR-860L lets you control what information is accessible to those on the wireless network, whether from the Internet or from your company's server. Configure your router to your specific settings within minutes.

* Maximum wireless signal rate derived from IEEE Standard 802.11a, 802.11b, 802.11g, 802.11n, and draft 802.11ac specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead lower actual data throughput rate. Environmental conditions will adversely affect wireless signal range.

Hardware Overview

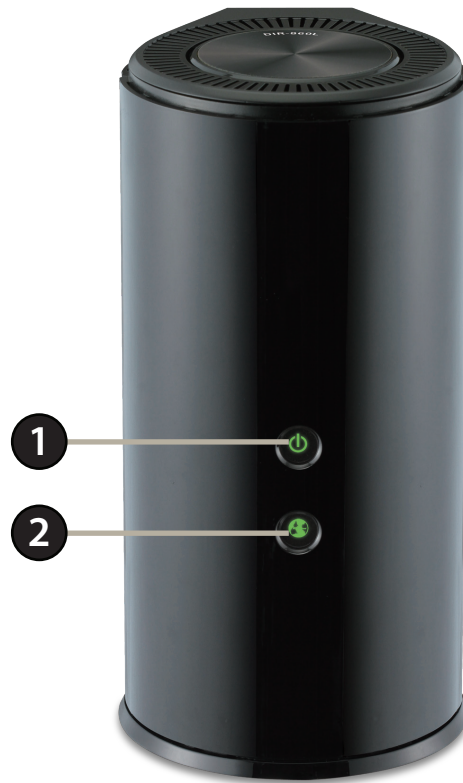
Connections



1	USB 3.0 Port	Connect a USB flash drive to share content , or connect it to a USB printer to share it on your network.
2	WPS Button	Press to start the WPS process and automatically create a secure connection to a WPS client.
3	Gigabit LAN Ports (1-4)	Connect Ethernet devices such as computers, switches, storage (NAS) devices, and game consoles.
4	Gigabit Internet Port	Using an Ethernet cable, connect your broadband modem to this port.
5	Power Button	Press the power button to power on and off.
6	Power Receptor	Receptor for the supplied power adapter.
7	Reset Button	Insert a paperclip into the hole and hold for several seconds to reset the router to default settings.

Hardware Overview

LEDs



1	Power LED	A solid green light indicates a proper connection to the power supply. The light will blink green during the WPS process. The light will be a solid orange during bootup.
2	Internet LED	A solid light indicates a successful connection on the Internet port. If the LED is orange, the connection is good but the router cannot connect to the Internet.

Installation

This section will walk you through the installation process. Placement of the router is very important. Do not place the router in an enclosed area such as a closet or cabinet, or in an attic or garage.

Before you Begin

- Please configure the router with the computer that was last connected directly to your modem.
- You can only use the Ethernet port on your modem. If you were using a USB connection before using the router, then you must turn off your modem, disconnect the USB cable and connect an Ethernet cable to the Internet port on the router, and then turn the modem back on. In some cases, you may need to call your ISP to change connection types (USB to Ethernet).
- If you have DSL and are connecting via PPPoE, make sure you disable or uninstall any PPPoE software such as WinPoet, Broadjump, or Enternet 300 from your computer or you will not be able to connect to the Internet.

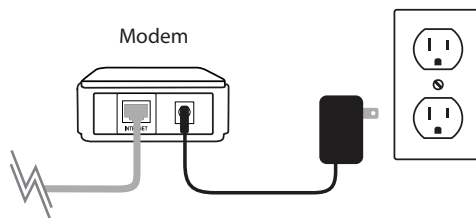
Wireless Installation Considerations

The D-Link wireless router lets you access your network using a wireless connection from virtually anywhere within the operating range of your wireless network. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

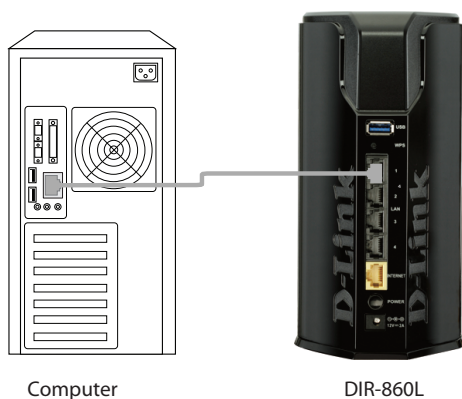
1. Keep the number of walls and ceilings between the D-Link router and other network devices to a minimum - each wall or ceiling can reduce your device's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it appears over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
3. Building materials make a difference. A solid metal door or aluminum studs may have a negative effect on range. Try to position access points, wireless routers, and computers so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.
4. Keep your product away (at least 3-6 feet/1-2 meters) from electrical devices or appliances that generate RF noise.
5. If you are using 2.4GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone is in not in use.

Manual Setup

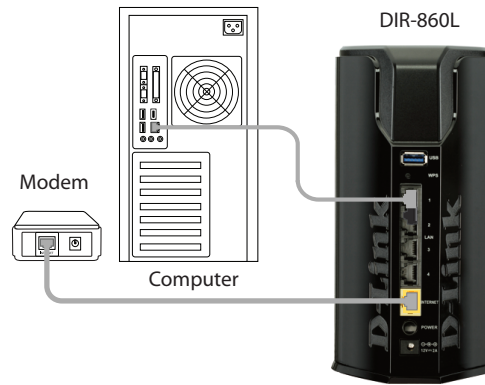
1. Turn off and unplug your cable or DSL broadband modem.



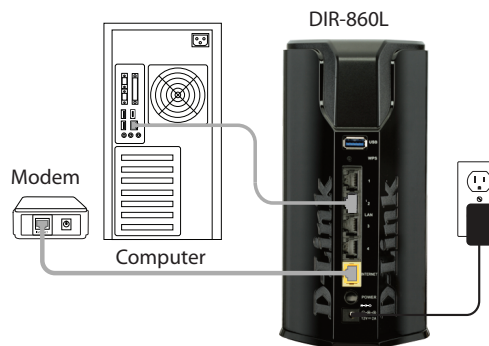
2. Position your router close to your modem and a computer. Place the router in an open area of your intended work area for better wireless coverage.
3. Unplug the Ethernet cable from your modem (or existing router if upgrading) that is connected to your computer. Plug it into the LAN port labeled **1** on the back of your router. The router is now connected to your computer.



4. Plug one end of the included Ethernet cable that came with your router into the yellow port labeled INTERNET on the back of the router. Plug the other end of this cable into the Ethernet port on your modem.



5. Reconnect the power adapter to your cable or DSL broadband modem and wait for two minutes.
6. Connect the supplied power adapter into the power receptor on the back of the router and then plug it into a power outlet or surge protector. Press the power button and verify that the power LED is lit. Allow 1 minute for the router to boot up.



7. If you are connecting to a Broadband service, you may be online already and further configuration will be optional.

Configuration

There are several different ways you can configure your router to connect to the Internet and connect to your clients:

- **D-Link Setup Wizard** - This wizard will launch when you log into the router for the first time. Refer to page 12.
- **QRS Mobile App** - Use your iPhone, iPad, or iPod Touch to configure your router. Refer to page 19.
- **Manual Setup** - Log into the router and manually configure your router (advanced users only). Refer to pagepage 26.

D-Link Quick Setup Wizard

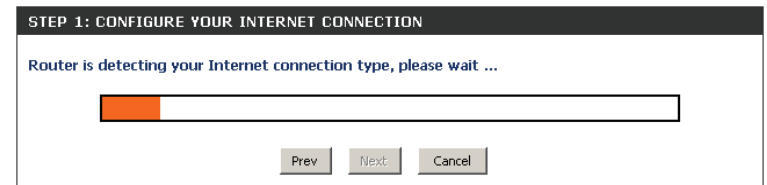
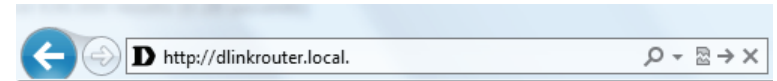
If this is your first time installing the router, open your web browser. You will automatically be directed to the **Wizard Setup Screen**.

If the wizard does not open automatically, you can alternatively reach the configuration utility by entering “**http://dlinkrouter.local**” or the IP address of the router (**http://192.168.0.1**). Please refer to page 24.

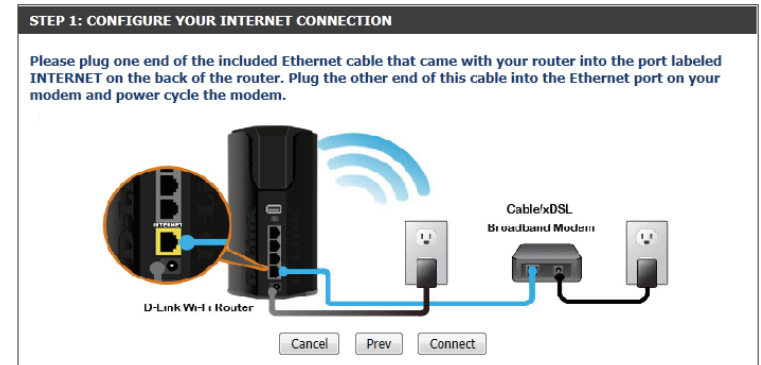
This wizard is designed to guide you through a step-by-step process to configure your new D-Link router and connect to the Internet.

Click **Next** to continue.

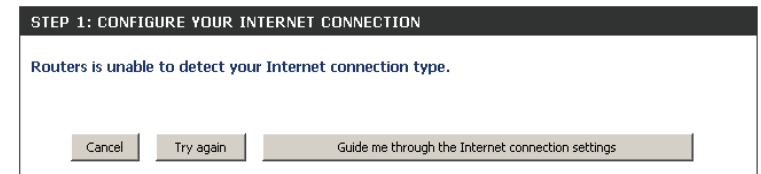
Please wait while your router detects your Internet connection type. If the router detects your Internet connection, you may need to enter your ISP information such as username and password.



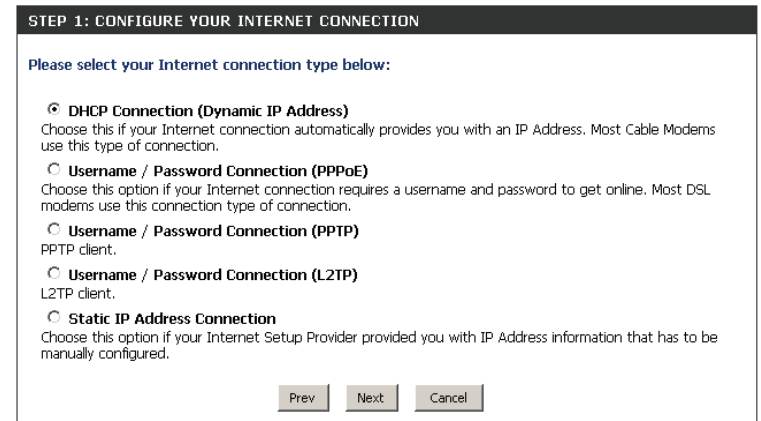
If the router does not detect a valid Ethernet connection from the Internet port, this screen will appear. Connect your broadband modem to the Internet port and then click **Try Again**.



If the router detects an Ethernet connection but does not detect the type of Internet connection you have, this screen will appear. Click **Guide me through the Internet Connection Settings** to display a list of connection types to choose from.



Select your Internet connection type and click **Next** to continue.



If the router detected or you selected **PPPoE**, enter your PPPoE username and password and click **Next** to continue.

Note: Make sure to remove any PPPoE software from your computer. The software is no longer needed and will not work through a router.

If the router detected or you selected **PPTP**, enter your PPTP username, password, and other information supplied by your ISP. Click **Next** to continue.

If the router detected or you selected **L2TP**, enter your L2TP username, password, and other information supplied by your ISP. Click **Next** to continue.

SET USERNAME AND PASSWORD CONNECTION (PPPoE)

To set up this connection you will need to have a Username and Password from your Internet Service Provider. If you do not have this information, please contact your ISP.

User Name :

Password :

Prev Next Cancel

SET USERNAME AND PASSWORD CONNECTION (PPTP)

To set up this connection you will need to have a Username and Password from your Internet Service Provider. You also need PPTP IP adress. If you do not have this information, please contact your ISP.

Address Mode : Dynamic IP Static IP

PPTP IP Address :

PPTP Subnet Mask :

PPTP Gateway IP Address :

PPTP Server IP Address (may be same as gateway) :

User Name :

Password :

Verify Password :

DNS SETTINGS

Primary DNS Address :

Secondary DNS Address :

Prev Next Cancel

SET USERNAME AND PASSWORD CONNECTION (L2TP)

To set up this connection you will need to have a Username and Password from your Internet Service Provider. You also need L2TP IP adress. If you do not have this information, please contact your ISP.

Address Mode : Dynamic IP Static IP

L2TP IP Address :

L2TP Subnet Mask :

L2TP Gateway IP Address :

L2TP Server IP Address (may be same as gateway) :

User Name :

Password :

Verify Password :

DNS SETTINGS

Primary DNS Address :

Secondary DNS Address :

Prev Next Cancel

If the router detected or you selected **Static**, enter the IP and DNS settings supplied by your ISP. Click **Next** to continue.

SET STATIC IP ADDRESS CONNECTION

To set up this connection you will need to have a complete list of IP information provided by your Internet Service Provider. If you have a Static IP connection and do not have this information, please contact your ISP.

IP Address :

Subnet Mask :

Gateway Address :

DNS SETTINGS

Primary DNS Address :

Secondary DNS Address :

For both the 2.4GHz and 5GHz segments, create a Wi-Fi network name (SSID) using up to 32 characters.

Create a Wi-Fi password (between 8-63 characters). Your wireless clients will need to have this passphrase or key entered to be able to connect to your wireless network.

Click **Next** to continue.

STEP 2: CONFIGURE YOUR WI-FI SECURITY

Give your Wi-Fi network a name and a password. (2.4GHz Band)

Wi-Fi Network Name (SSID) : (Using up to 32 characters)

Wi-Fi Password : (Between 8 and 63 characters)

Give your Wi-Fi network a name and a password. (5GHz Band)

Wi-Fi Network Name (SSID) : (Using up to 32 characters)

Wi-Fi Password : (Between 8 and 63 characters)

In order to secure your router, please enter a new password to use when accessing the web-based configuration utility (where the password field was previously left blank). Check the **Enable Graphical Authentication** box to enable CAPTCHA authentication for added security. Be sure to make a record of this password for future use. Click **Next** to continue.

STEP 3: SET YOUR PASSWORD

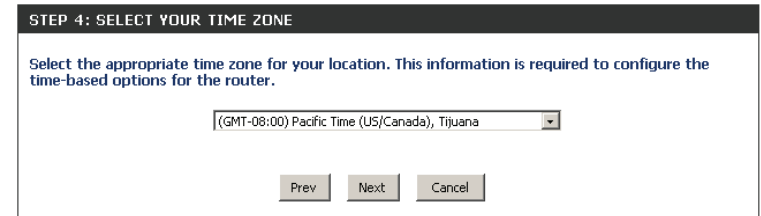
By default, your new D-Link Router does not have a password configured for administrator access to the Web-based configuration pages. To secure your new networking device, please set and verify a password below, and enabling CAPTCHA Graphical Authentication provides added security protection to prevent unauthorized online users and hacker software from accessing your network settings.

Password:

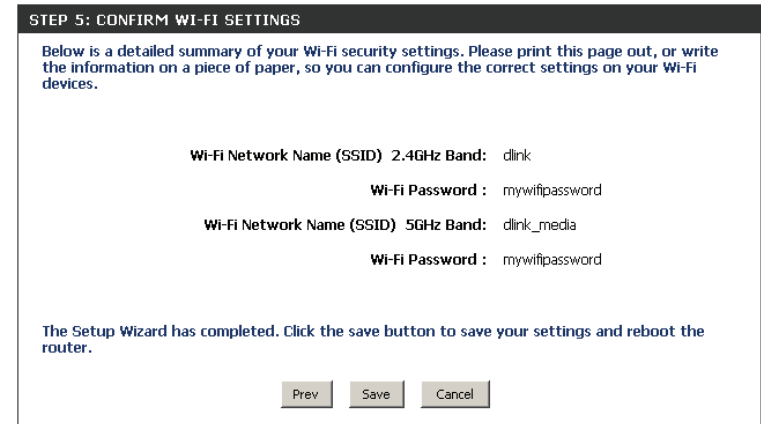
Verify Password :

Enable Graphical Authentication :

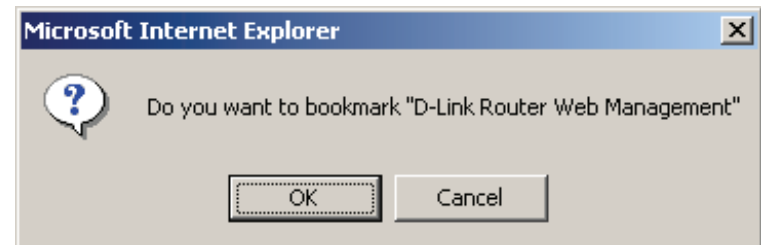
Select your time zone from the drop-down menu and click **Next** to continue.



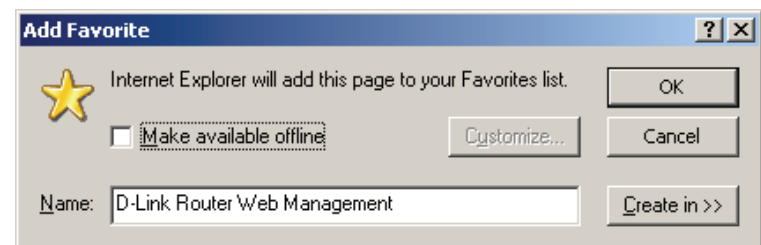
The Setup Complete window will display your Wi-Fi settings. Click **Save** to continue.



If you want to create a bookmark to the router, click **OK**. Click **Cancel** if you do not want to create a bookmark.



If you clicked **Yes**, a window may appear (depending on what web browser you are using) to create a bookmark.

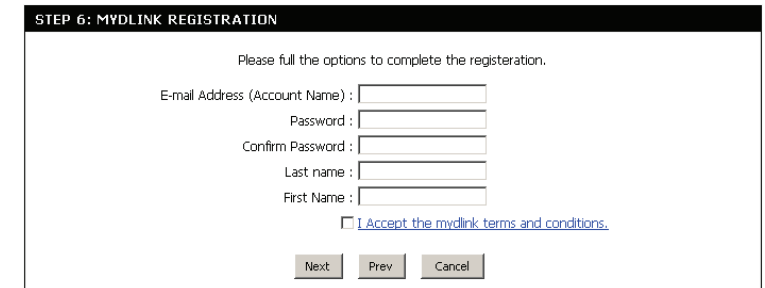
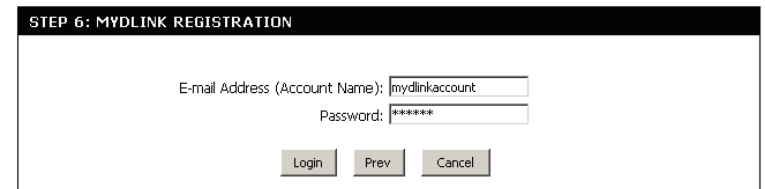
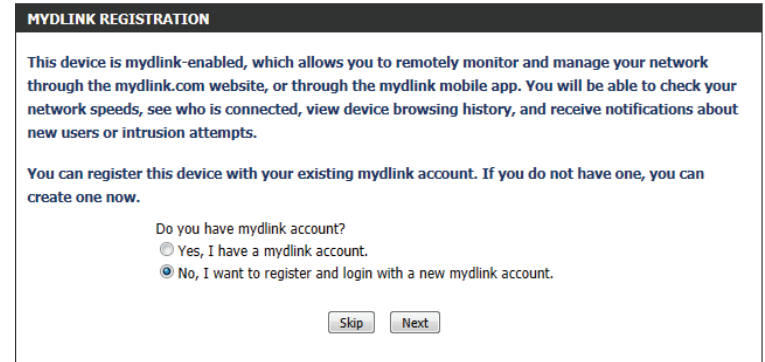


To use the mydlink service (mydlink.com or the mydlink Lite app), you must have an account. Select if you do have a mydlink account or if you need to create one. Click **Next** to continue.

If you do not want to register at this time, click **Cancel**.

If you selected **Yes**, enter your mydlink account name (email address) and password. Click **Login** to register your router.

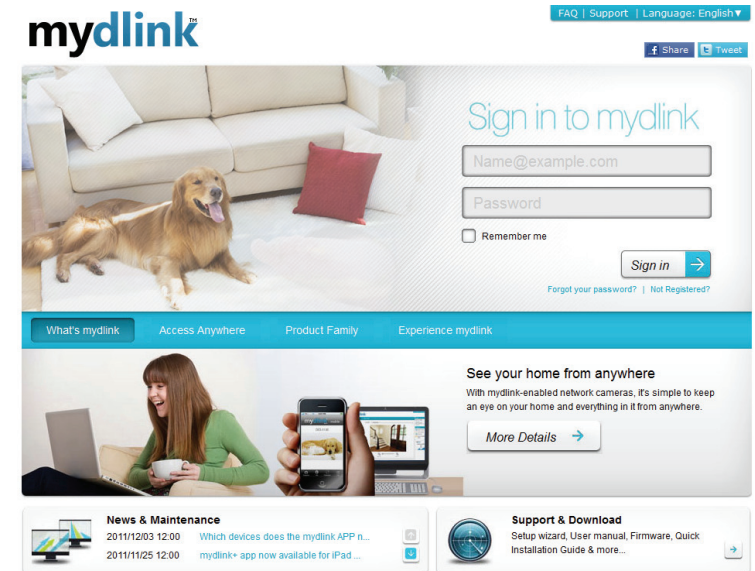
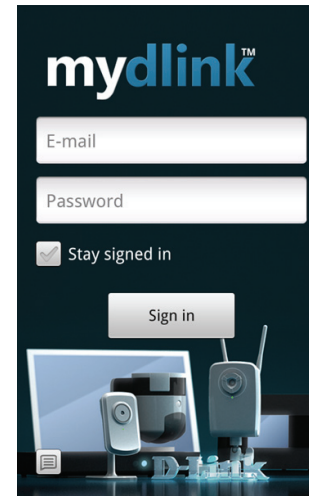
If you selected **No**, fill out the requested information and click **Next** to create your mydlink account.



The mydlink App will allow you to receive notices, browse network users, and configure your router from an iPhone/iPad/iPod Touch (iOS 3.0 or higher), or Android device (1.6 or higher).

To download the "mydlink Lite" app, visit the App Store, Google Play, or <http://mydlink.com/Lite>.

PC and Mac users can use the mydlink portal at <http://mydlink.com>.



QRS Mobile App (iOS, Android)

D-Link offers an app for your iOS or Android device to install and configure your router.

Step 1

From an iOS device, go to the App Store. From an Android device go to Google Play. Search for 'D-Link', select **QRS Mobile**, and download the app to your device. You may also scan the appropriate code on the right to locate the app download page.



iOS



Android

Step 2

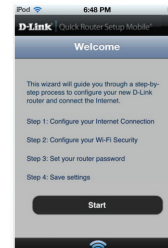
Once your app is installed, you may now configure your router. Connect to the router wirelessly by going to your wireless utility on your device. Scan for the Wi-Fi name (SSID) as listed on the supplied configuration note. Select and then enter your Wi-Fi password.

D-Link DIR-860L Router Wi-Fi Configuration Note

Web browser link: http://dlinkrouter or http://192.168.0.1	Web browser link: http://dlinkrouter or http://192.168.0.1
Default configuration	Your configuration
Username: "Admin"	Username: Admin
Password: "" (leave the field blank)	Password:
Wi-Fi Name (SSID): dlink-a8fa	Wi-Fi Name (SSID):
Wi-Fi Password: akbdj19368	Wi-Fi Password:

Step 3

Once you connect to the router, launch the QRS mobile app and it will guide you through the installation of your router.

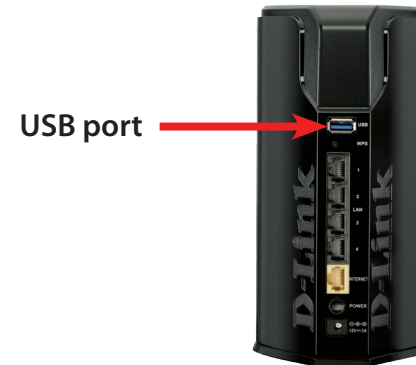


SharePort Mobile App (iOS, Android)

The SharePort Mobile app will allow you to access files from a USB storage drive that is plugged into your router. You must enable file sharing from the **Setup > Storage** page (refer to page 22) for this app to work properly.

1. Plug your USB storage drive into the USB port.

Note: The DIR-860L supports hard drives with up to one terabyte of storage capacity.



2. Use your iOS or Android mobile device to scan the QR code to the right to download the **SharePort Mobile** app.

You can also search for the SharePort Mobile app directly in the iOS App Store or Google Play.

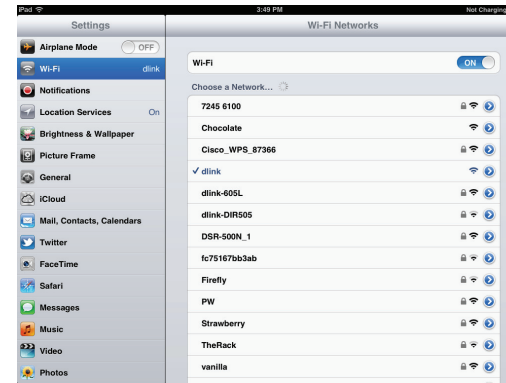


3. From your iOS or Android mobile device, choose **Settings**.

Note: These steps are for the iOS version of the app. The Android version may differ slightly.



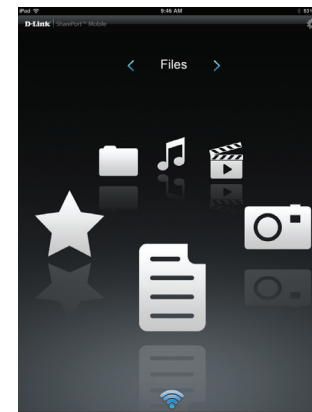
4. Click **Wi-Fi**, select the Wi-Fi Network Name (SSID) that you created during setup and then enter the default Wi-Fi password located on your Wi-Fi configuration note.



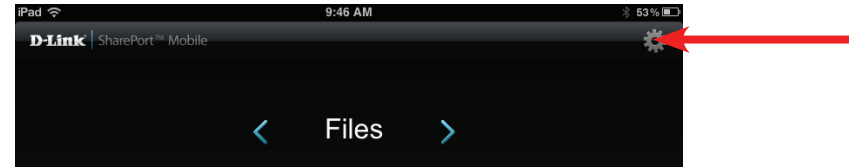
5. Once connected, tap on the **SharePort Mobile** icon.



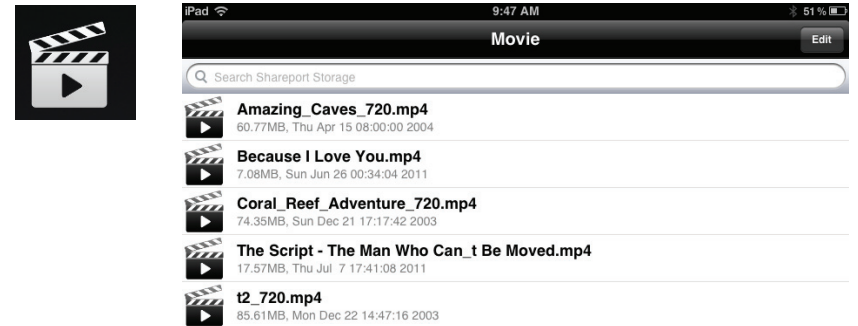
The following screen will appear.



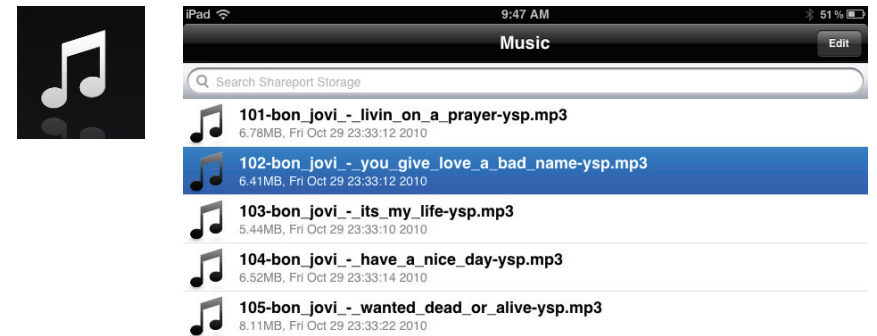
6. Tap on the **Settings** icon located on the top-right corner of the screen. Tap **Edit** to enter your User Name and Password (the default username is **admin** and the password field should be left blank). Once you finish, click **Done** to continue.



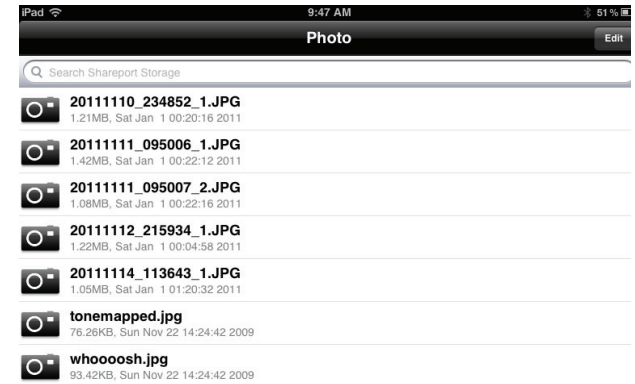
7. For the Movie section, click the movie icon to play your movie from your USB flash drive.



8. For the Music section, click the music icon to play your music from your USB flash drive.



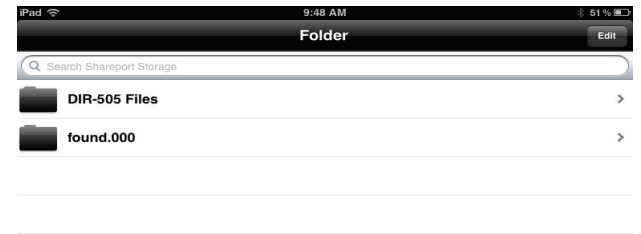
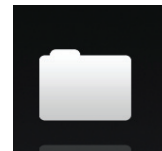
9. For the Photo section, click the Photo icon to view your photos from your USB flash drive.



10. For the Files section, click on the Files icon to view your files from your USB flash drive.



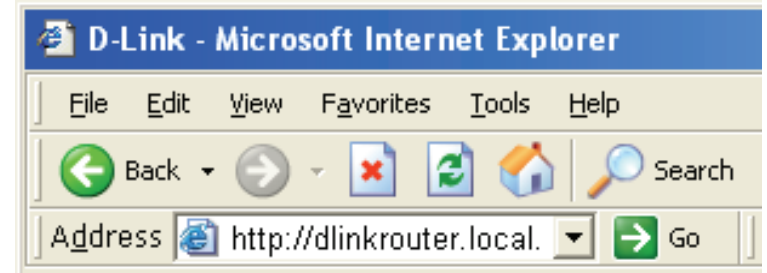
11. For the Folder section, click the folder icon to view your folders from your USB flash drive.



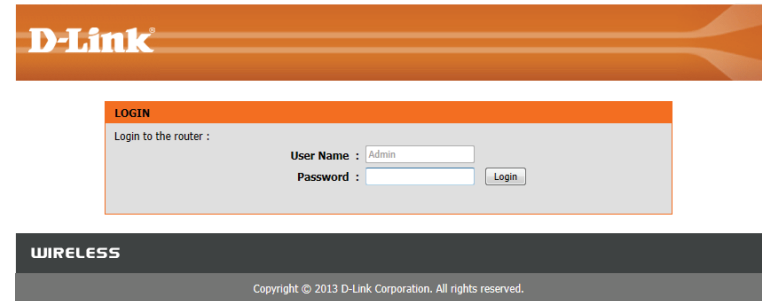
Web-based Configuration Utility

To access the configuration utility, open a web-browser such as Internet Explorer and enter **http://dlinkrouter.local**

Users may also connect by typing the IP address of the router (**http://192.168.0.1**) in the address bar.



Enter your password. The password should be left blank by default.



Internet Connection Setup

If you want to configure your router to connect to the Internet using the wizard, click **Internet Connection Setup Wizard**. You will be directed to the Quick Setup Wizard. Please refer to page 12.

Click **Manual Internet Connection Setup** to configure your connection manually and continue to the next page.

The screenshot shows the D-Link web interface for the DIR-860L router. The top navigation bar includes 'D-Link', 'DIR-860L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various settings categories: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPV6, and MYDLINK SETTINGS. The main content area is titled 'INTERNET CONNECTION' and contains the following text:

INTERNET CONNECTION

If you are configuring the device for the first time, we recommend that you click on the Internet Connection Setup Wizard, and follow the instructions on the screen. If you wish to modify or configure the device settings manually, click the Manual Internet Connection Setup.

INTERNET CONNECTION SETUP WIZARD

If you would like to utilize our easy to use Web-based Wizard to assist you in connecting your new D-Link Systems Router to the Internet, click on the button below.

[Internet Connection Setup Wizard](#)

MANUAL INTERNET CONNECTION OPTION

If you would like to configure the Internet settings of your new D-Link Router manually, then click on the button below.

[Manual Internet Connection Setup](#)

On the right side, there is a 'Helpful Hints...' section with the following text:

- If you are new to networking and have never configured a router before, click on **Internet Connection Setup Wizard** and the router will guide you through a few simple steps to get your network up and running.
- If you consider yourself an advanced user and have configured a router before, click **Manual Internet Connection Setup** to input all the settings manually.
- [More...](#)

The bottom of the page features a 'WIRELESS' section and a copyright notice: 'Copyright © 2013 D-Link Corporation. All rights reserved.'

Manual Internet Setup

Static IP

Select your connection type from the **My Internet Connect Is** drop-down box. Choose Static IP if all of the necessary IP information has been provided by your ISP. You will need to enter the IP address, subnet mask, gateway address, and DNS address(es). Each IP address entered in the fields must be in the appropriate IP form, which are four octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

My Internet Connection Is: Select **Static IP** to manually enter the IP settings supplied by your ISP.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) services enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

IP Address: Enter the IP address assigned by your ISP.

Subnet Mask: Enter the Subnet Mask assigned by your ISP.

Default Gateway: Enter the Gateway assigned by your ISP.

DNS Servers: The DNS server information will be supplied by your ISP

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU.

MAC Address: The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

The screenshot shows the router's configuration page for the WAN connection. The 'My Internet Connection is' dropdown is set to 'Static IP'. The 'STATIC IP ADDRESS INTERNET CONNECTION TYPE' section contains the following fields:

- IP Address: []
- Subnet Mask: 0.0.0.0
- Default Gateway: []
- Primary DNS Server: []
- Secondary DNS Server: [] (optional)
- MTU: 1500
- MAC Address: []

At the bottom of the form, there is a 'Clone Your PC's MAC Address' button and 'Save Settings' / 'Don't Save Settings' buttons.

Dynamic IP (DHCP)

If you are unsure what method you use to connect to the Internet, try this first. Cable modems usually use this type of connection

My Internet Connection: Select **Dynamic IP (DHCP)** to obtain IP Address information automatically from your ISP. Select this option if your ISP does not give you any IP numbers to use. This option is commonly used for cable modem services.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Disclaimer: D-Link makes no guarantee as to the availability, reliability, functionality and operation of the Advanced DNS service or its features.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

Host Name: The Host Name is optional but may be required by some ISPs. Leave blank if you are not sure.

Use Unicasting: Check the box if you are having problems obtaining an IP address from your ISP.

Primary/Secondary DNS Server: Enter the Primary and Secondary DNS server IP addresses assigned by your ISP. These addresses are usually obtained automatically from your ISP. Leave at 0.0.0.0 if you did not specifically receive these from your ISP.

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU.

MAC Address: The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'DIR-860L', 'SETUP', 'ADVANCED', 'TOOLS', and 'STATUS'. The left sidebar lists various settings categories: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPV6, and MYDLINK SETTINGS. The main content area is titled 'WAN' and contains the following sections:

- WAN:** A header section with a note: "Use this section to configure your Internet Connection type. There are several connection types to choose from: Static IP, DHCP, PPPoE, PPTP, and L2TP. If you are unsure of your connection method, please contact your Internet Service Provider." Below this is a note: "Note : If using the PPPoE option, you will need to remove or disable any PPPoE client software on your computers." and two buttons: "Save Settings" and "Don't Save Settings".
- INTERNET CONNECTION TYPE:** A section with the instruction "Choose the mode to be used by the router to connect to the Internet." and a dropdown menu labeled "My Internet Connection is :" set to "Dynamic IP (DHCP)".
- DYNAMIC IP (DHCP) INTERNET CONNECTION TYPE :** A section with the instruction "Use this Internet connection type if your Internet Service Provider (ISP) didn't provide you with IP Address information and/or a username and password." and several input fields:
 - Host Name : dlinkrouter
 - Use Unicasting : (compatibility for some DHCP Servers)
 - Primary DNS Server : [input field]
 - Secondary DNS Server : [input field] (optional)
 - MTU : 1500
 - MAC Address : [input field]
 Below these fields is a button labeled "Clone Your PC's MAC Address".

At the bottom of the main content area, there are two buttons: "Save Settings" and "Don't Save Settings".

PPPoE (Username/Password)

Choose PPPoE (Point to Point Protocol over Ethernet) if your ISP uses a PPPoE connection. Your ISP will provide you with a username and password. This option is typically used for DSL services. Make sure to remove any PPPoE software from your computer. The software is not needed and will not work through a router.

My Internet Connection: Select **PPPoE (Username/Password)** from the drop-down menu.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Disclaimer: D-Link makes no guarantee as to the availability, reliability, functionality and operation of the Advanced DNS service or its features.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

Address Mode: Select **Static IP** if your ISP assigned you an IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

IP Address: Enter the IP address (Static PPPoE only).

Username: Enter your PPPoE username.

Password: Enter your PPPoE password and then retype the password in the next box.

Service Name: Enter the ISP Service Name (optional).

Reconnect Mode: Select either **Always-on**, **On-Demand**, or **Manual**.

The screenshot shows the D-Link router's configuration interface. The 'WAN' tab is selected, and the 'INTERNET CONNECTION TYPE' is set to 'PPPoE (Username / Password)'. The 'PPPoE INTERNET CONNECTION TYPE' section is expanded, showing fields for 'Address Mode' (Dynamic IP selected), 'IP Address', 'Username', 'Password', 'Verify Password', 'Service Name', 'Reconnect Mode' (Always-on selected), 'Maximum Idle Time' (5 minutes), 'DNS Mode' (Receive DNS from ISP selected), 'Primary DNS Server', 'Secondary DNS Server', 'MTU' (1492), and 'MAC Address'. There are 'Save Settings' and 'Don't Save Settings' buttons at the bottom.

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect.

DNS Addresses: Enter the Primary and Secondary DNS Server Addresses (Static PPPoE only).

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1492 is the default MTU.

MAC Address: The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

PPTP

Choose PPTP (Point-to-Point-Tunneling Protocol) if your ISP uses a PPTP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.

My Internet Connection: Select **PPTP (Username/Password)** from the drop-down menu.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) services enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Disclaimer: D-Link makes no guarantee as to the availability, reliability, functionality and operation of the Advanced DNS service or its features.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

Address Mode: Select **Static** if your ISP assigned you an IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

PPTP IP Address: Enter the IP address (Static PPTP only).

PPTP Subnet Mask: Enter the Primary and Secondary DNS Server Addresses (Static PPTP only).

PPTP Gateway: Enter the Gateway IP Address provided by your ISP.

PPTP Server IP: Enter the Server IP provided by your ISP (optional).

Username: Enter your PPTP username.

The screenshot shows the D-Link router's configuration interface. The 'WAN' section is active, displaying the 'INTERNET CONNECTION TYPE' as 'PPTP (Username / Password)'. Below this, the 'PPTP INTERNET CONNECTION TYPE' section is expanded, showing fields for 'Address Mode' (Dynamic IP selected), 'PPTP IP Address', 'PPTP Subnet Mask', 'PPTP Gateway IP Address', 'PPTP Server IP Address', 'Username', 'Password', 'Verify Password', 'Reconnect Mode' (Always on selected), 'Maximum Idle Time' (5 minutes), 'Primary DNS Server', 'Secondary DNS Server', 'MTU' (1400), and 'MAC Address'. There are 'Save Settings' and 'Don't Save Settings' buttons at the bottom of the form.

Password: Enter your PPTP password and then retype the password in the next box.

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect.

DNS Servers: The DNS server information will be supplied by your ISP.

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1400 is the default MTU.

MAC Address: The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

L2TP

Choose L2TP (Layer 2 Tunneling Protocol) if your ISP uses a L2TP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.

My Internet Connection: Select **L2TP (Username/Password)** from the drop-down menu.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) services enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Disclaimer: D-Link makes no guarantee as to the availability, reliability, functionality and operation of the Advanced DNS service or its features.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

Address Mode: Select **Static** if your ISP assigned you an IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

PPTP IP Address: Enter the IP address (Static PPTP only).

PPTP Subnet Mask: Enter the Primary and Secondary DNS Server Addresses (Static PPTP only).

PPTP Gateway: Enter the Gateway IP Address provided by your ISP.

PPTP Server IP: Enter the Server IP provided by your ISP (optional).

Username: Enter your PPTP username.

The screenshot shows the D-Link router's configuration page for WAN settings. The 'INTERNET CONNECTION TYPE' is set to 'L2TP (Username / Password)'. The 'L2TP INTERNET CONNECTION TYPE' section is active, showing fields for L2TP IP Address, Subnet Mask, Gateway IP Address, Server IP Address, Username, Password, and Verify Password. The 'Address Mode' is set to 'Dynamic IP'. The 'Reconnect Mode' is set to 'On demand'. The 'Maximum Idle Time' is set to 5 minutes. The 'Primary DNS Server' and 'Secondary DNS Server' fields are empty. The 'MTU' is set to 1400. The 'MAC Address' field is empty, with a 'Clone Your PC's MAC Address' button next to it. The page also includes 'Save Settings' and 'Don't Save Settings' buttons at the bottom.

Password: Enter your PPTP password and then retype the password in the next box.

Reconnect Mode: Select either **Always-on**, **On-Demand**, or **Manual**.

DS-Lite

DS-Lite is an IPv6 connection type. After selecting DS-Lite, the following parameters will be available for configuration:

DS-Lite Configuration: Select the DS-Lite DHCPv6 option to let the router allocate the AFTR IPv6 address automatically. Select the Manual Configuration to enter the AFTR IPv6 address in manually.

AFTR IPv6 Address: After selecting the Manual Configuration option above, enter the AFTR IPv6 address used here.

B4 IPv4 Address: Enter the B4 IPv4 address value used here.

WAN IPv6 Address: Once connected, the WAN IPv6 address will be displayed here.

IPv6 WAN Default Gateway: Once connected, the IPv6 WAN Default Gateway address will be displayed here.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'DIR-860L', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various settings categories: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPV6, and MYLINK SETTINGS. The main content area is titled 'WAN' and contains the following configuration options:

- INTERNET CONNECTION TYPE:** Choose the mode to be used by the router to connect to the Internet. The 'My Internet Connection is' dropdown is set to 'DS-Lite'.
- AFTR ADDRESS INTERNET CONNECTION TYPE:** Enter the AFTR address information provided by your Internet Service Provider (ISP).
 - DS-Lite Configuration: DS-Lite DHCPv6 Option Manual Configuration
 - AFTR IPv6 Address:
 - B4 IPv4 Address: 192.0.0. (optional)
 - WAN IPv6 Address:
 - IPv6 WAN Default Gateway:

At the bottom of the configuration section are 'Save Settings' and 'Don't Save Settings' buttons. On the right side, there is a 'Helpful Hints...' section with information about Internet Connection and Support.

Wireless Settings

If you want to configure the wireless settings on your router using the wizard, click **Wireless Network Setup Wizard** and refer to page 42.

Click **Add Wireless Device with WPS** if you want to add a wireless device using Wi-Fi Protected Setup (WPS) and refer to page 44.

If you want to manually configure the wireless settings on your router, click **Manual Wireless Network Setup** and refer to the next page.

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

WIRELESS SETTINGS

The following Web-based wizards are designed to assist you in your wireless network setup and wireless device connection.
Before launching these wizards, please make sure you have followed all steps outlined in the Quick Installation Guide included in the package.

WIRELESS NETWORK SETUP WIZARD

This wizard is designed to assist you in your wireless network setup. It will guide you through step-by-step instructions on how to set up your wireless network and how to make it secure.

[Wireless Connection Setup Wizard](#)

Note: Some changes made using this Setup Wizard may require you to change some settings on your wireless client adapters so they can still connect to the D-Link Router.

ADD WIRELESS DEVICE WITH WPS (WI-FI PROTECTED SETUP) WIZARD

This wizard is designed to assist you in connecting your wireless device to your wireless router. It will guide you through step-by-step instructions on how to get your wireless device connected. Click the button below to begin.

[Add Wireless Device with WPS](#)

MANUAL WIRELESS NETWORK SETUP

If your wireless network is already set up with Wi-Fi Protected Setup, manual configuration of the wireless network will destroy the existing wireless network. If you would like to configure the wireless settings of your new D-Link Systems Router manually, then click on the Manual Wireless Network Setup button below.

[Manual Wireless Connection Setup](#)

Helpful Hints...

- If you already have a wireless network setup with Wi-Fi Protected Setup, click on **Add Wireless Device with WPS** to add new device to your wireless network.
- If you are new to wireless networking and have never configured a wireless router before, click on **Wireless Connection Setup Wizard** and the router will guide you through a few simple steps to get your wireless network up and running.
- If you consider yourself an advanced user and have configured a wireless router before, click **Manual Wireless Connection Setup** to input all the settings manually.
- [More...](#)

WIRELESS

Wireless Connection Setup Wizard

To run the security wizard, click on Setup on the top menu bar and then click **Wireless Connection Setup Wizard**.

The screenshot shows the D-Link web interface for the DIR-860L router. The top navigation bar includes 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various settings categories, with 'WIRELESS SETTINGS' selected. The main content area is titled 'WIRELESS SETTINGS' and contains the following sections:

- WIRELESS SETTINGS:** A introductory text block explaining the purpose of the web-based wizards.
- WIRELESS NETWORK SETUP WIZARD:** A section with a button labeled 'Wireless Connection Setup Wizard'.
- ADD WIRELESS DEVICE WITH WPS (WI-FI PROTECTED SETUP) WIZARD:** A section with a button labeled 'Add Wireless Device with WPS'.
- MANUAL WIRELESS NETWORK SETUP:** A section with a button labeled 'Manual Wireless Connection Setup'.

A 'Helpful Hints...' sidebar on the right provides additional instructions, such as: 'If you already have a wireless network setup with Wi-Fi Protected Setup, click on Add Wireless Device with WPS to add new device to your wireless network.'

STEP 1: Type your desired wireless network names (SSIDs) for both the 2.4 GHz band and the 5 GHz band.

Automatically: Select this option to automatically generate the router's network key (password) and click **Next**.

Manually: Select this option to manually enter your network key and click **Next**.

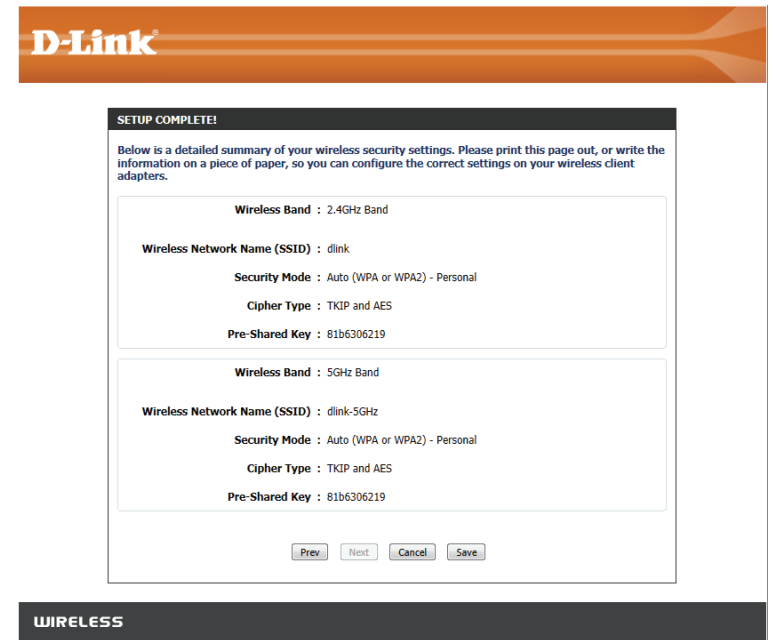
The screenshot shows the 'STEP 1: WELCOME TO THE D-LINK WIRELESS SECURITY SETUP WIZARD' screen. The screen prompts the user to 'Give your network a name, using up to 32 characters.' and shows input fields for 'Network Name (SSID) 2.4GHz' and 'Network Name (SSID) 5GHz'. Below the input fields are two radio button options: 'Automatically assign a network key (Recommended)' and 'Manually assign a network key'. At the bottom, there are buttons for 'Prev', 'Next', 'Cancel', and 'Save'.

If you selected **Automatically**, the wizard will generate a pre-shared key (password). The password will be the same for both the 2.4GHz and 5GHz bands.

Click **Next**.

You will now see a summary window that displays your settings. Write down the password and use it to access your wireless networks.

Click **Save** to save your settings.



If you selected **Manually**, the option to make your password the same on both bands will be offered.

Enter your wireless password in the box below. If you chose to have different passwords for each band, you will need to enter a separate password for each band.

Click **Next**.

You will now see a summary window that displays your settings. Write down the password and use it to access your wireless networks.

Click **Save** to save your settings.

D-Link

STEP 2: SET YOUR WIRELESS SECURITY PASSWORD

You have selected your security level - you will need to set a wireless security password.

The WPA (Wi-Fi Protected Access) key must meet one of following guidelines:

- Between 8 and 63 characters (A longer WPA key is more secure than a short one)
- Exactly 64 characters using 0-9 and A-F

Use the same Wireless Security Password on both 2.4GHz and 5GHz band

Wireless Security Password :

Note: You will need to enter the same password as keys in this step into your wireless clients in order to enable proper wireless communication.

WIRELESS

D-Link

SETUP COMPLETE!

Below is a detailed summary of your wireless security settings. Please print this page out, or write the information on a piece of paper, so you can configure the correct settings on your wireless client adapters.

Wireless Band : 2.4GHz Band

Wireless Network Name (SSID) : dlink

Security Mode : Auto (WPA or WPA2) - Personal

Cipher Type : TKIP and AES

Pre-Shared Key : password

Wireless Band : 5GHz Band

Wireless Network Name (SSID) : dlink-5GHz

Security Mode : Auto (WPA or WPA2) - Personal

Cipher Type : TKIP and AES

Pre-Shared Key : password

WIRELESS

Add Wireless Device with WPS Wizard

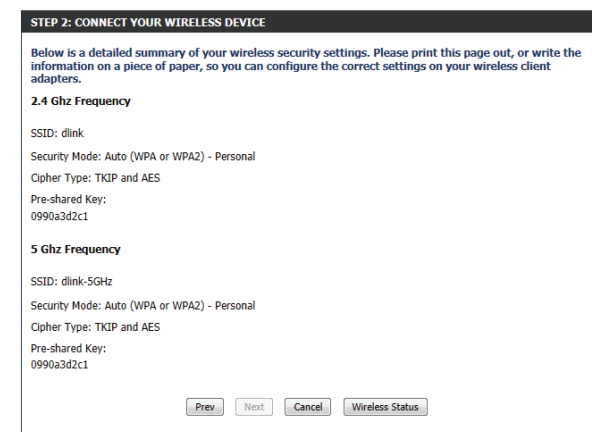
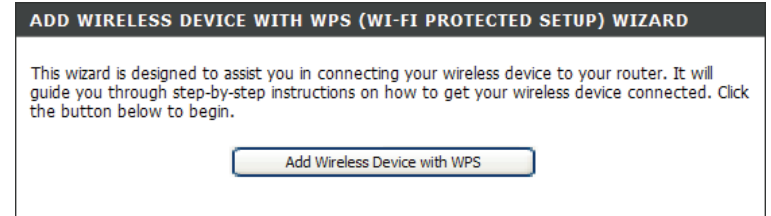
If you are unfamiliar with the types of wireless security, more information is located in the appendix at the back of this manual.

From the **Setup > Wireless Settings** screen, click **Add Wireless Device with WPS**.

Select **Auto** to add a wireless client using WPS (Wi-Fi Protected Setup) and then click **Next**. Skip to the next page.

If you select **Manual**, a settings summary screen will appear. Write down the security key and use this to access your wireless networks.

Click **OK** to finish.



WIRELESS

PIN: Select this option to use the PIN method. In order to use this method you must know the wireless client's 8 digit PIN and click **Connect**.

PBC: Select this option to use the PBC (Push Button) method to add a wireless client. Click **Connect**.

Once you click **Connect**, you will have a 120 second time limit to apply the settings to your wireless client(s) and successfully establish a connection.



STEP 2: CONNECT YOUR WIRELESS DEVICE

There are two ways to add wireless device to your wireless network:
-PIN (Personal Identification Number)
-PBC (Push Button Configuration)

PIN :

please enter the PIN from your wireless device and click the below "Connect" Button within 120 seconds

PBC

please press the push button on your wireless device and click the below "Connect" Button within 120 seconds

WIRELESS

ADD WIRELESS DEVICE WITH WPS

Please press down the Push Button (physical or virtual) on the wireless device you are adding to your wireless network within **117** seconds ...

Manual Wireless Settings

802.11ac draft (2.4GHz)

If you are unfamiliar with the types of wireless security, more information is located in the appendix at the back of this manual.

Enable Wireless: Check the box to enable the wireless function. If you do not want to use wireless, uncheck the box to disable all the wireless functions.

Schedule: Select the time frame that you would like your wireless network enabled. The schedule may be set to **Always**. Any schedule you create will be available in the drop-down menu. Click **New Schedule** to create a schedule.

Wireless Network Name: Service Set Identifier (SSID) is the name of your wireless network. Create a name for your wireless network using up to 32 characters. The SSID is case-sensitive.

802.11 Mode: Select one of the following:

- Mixed 802.11ac, 802.11n, and 802.11a** - Select if you are using both 802.11ac, 802.11n, and 802.11a wireless clients.
- Mixed 802.11ac and 802.11n** - Select if you are using both 802.11 ac and 802.11 n wireless clients.
- Mixed 802.11n and 802.11a** - Select if you are using both 802.11n and 802.11a wireless clients.
- 802.11ac Only** - Select only if all of your wireless clients are 802.11ac.
- 802.11n Only** - Select only if all of your wireless clients are 802.11n.

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DIR-860L to choose the channel with the least amount of interference.

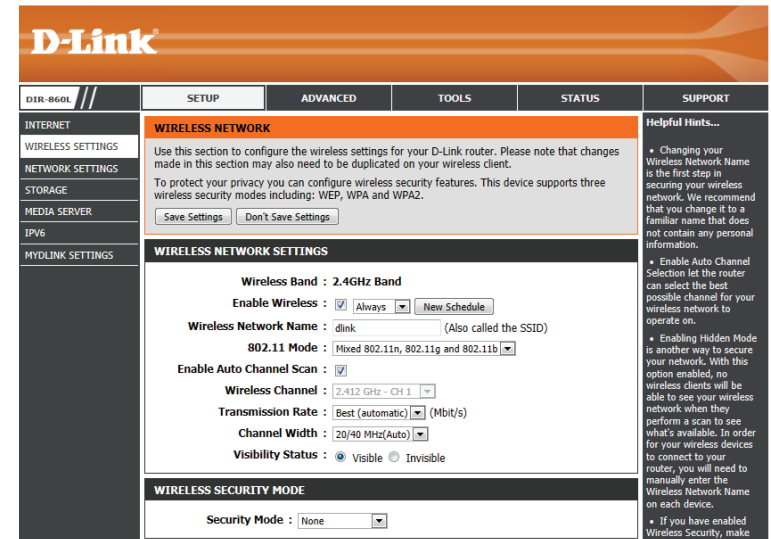
Wireless Channel: Indicates the channel setting for the DIR-860L. By default the channel is set to 6. The channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. If you enable **Auto Channel Scan**, this option will be greyed out.

Channel Width: Select the Channel Width:

- Auto 20/40** - This is the default setting. Select if you are using both 802.11n and non-802.11n wireless devices.
- 20MHz** - Select if you are not using any 802.11n wireless clients.

Visibility Status: Select **Invisible** if you do not want the SSID of your wireless network to be broadcast by the DIR-860L. If Invisible is selected, the SSID of the DIR-860L will not be seen by site survey utilities so your wireless clients will have to know the SSID of your DIR-860L in order to connect to it.

Wireless Security: Refer to the appendix in the back of the manual for more information regarding wireless security.



802.11ac draft (5GHz)

Enable Wireless: Check the box to enable the wireless function. If you do not want to use wireless, uncheck the box to disable all the wireless functions.

Schedule: Select the time frame that you would like your wireless network enabled. The schedule may be set to **Always**. Any schedule you create will be available in the drop-down menu. Click **New Schedule** to create a schedule.

Wireless Network Name: Service Set Identifier (SSID) is the name of your wireless network. Create a name for your wireless network using up to 32 characters. The SSID is case-sensitive.

802.11 Mode: Select one of the following:

802.11n Only - Select only if all of your wireless clients are 802.11n.

802.11ac Only - Select if all of your wireless clients are 802.11ac.

Mixed 802.11n and 802.11a - Select if you are using both 802.11n and 802.11a wireless clients.

Mixed 802.11ac and 802.11n - Select if you are using both 802.11ac and 802.11n wireless clients.

Mixed 802.11ac and 802.11a - Select if you are using both 802.11ac and 802.11a wireless clients.

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DIR-860L to choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DIR-860L. By default the channel is set to 6. The channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. If you enable **Auto Channel Scan**, this option will be greyed out.

Channel Width: Select the Channel Width:

Auto 20/40/80 - Select if you are using both 802.11ac, 802.11n and non-802.11n wireless devices.

Auto 20/40 - This is the default setting. Select if you are using both 802.11n and non-802.11n wireless devices.

20MHz - Select if you are not using any 802.11n wireless clients.

Visibility Status: Select **Invisible** if you do not want the SSID of your wireless network to be broadcast by the DIR-860L. If Invisible is selected, the SSID of the DIR-860L will not be seen by site survey utilities so your wireless clients will have to know the SSID of your DIR-860L in order to connect to it.

Wireless Security: Refer to the next page for more information regarding wireless security.

Network Settings

This section will allow you to change the local network settings of the router and to configure the DHCP settings.

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

INTERNET
WIRELESS SETTINGS
NETWORK SETTINGS
STORAGE
MEDIA SERVER
IPv6
MYLINK SETTINGS

Helpful Hints...

- If you already have a DHCP server on your network or are using static IP addresses on all the devices on your network, uncheck **Enable DHCP Server** to disable this feature.
- If you have devices on your network that should always have fixed IP addresses, add a **DHCP Reservation** for each such device.
- [More...](#)

NETWORK SETTINGS

Use this section to configure the internal network settings of your router and also to configure the built-in DHCP server to assign IP addresses to computers on your network. The IP address that is configured here is the IP address that you use to access the Web-based management interface. If you change the IP address in this section, you may need to adjust your PC's network settings to access the network again.

Please note that this section is optional and you do not need to change any of the settings here to get your network up and running.

Save Settings Don't Save Settings

ROUTER SETTINGS

Use this section to configure the internal network settings of your router. The IP address that is configured here is the IP address that you use to access the Web-based management interface. If you change the IP address here, you may need to adjust your PC's network settings to access the network again.

Router IP Address : 192.168.0.1
Default Subnet Mask : 255.255.255.0
Host Name : dlinkrouter
Local Domain Name : (optional)
Enable DNS Relay :

DHCP SERVER SETTINGS

Use this section to configure the built-in DHCP server to assign IP address to the computers on your network.

Enable DHCP Server :
DHCP IP Address Range : 100 to 199 (addresses within the LAN subnet)
DHCP Lease Time : 10080 (minutes)
Always broadcast : (compatibility for some DHCP Clients)
NetBIOS announcement :
Learn NetBIOS from WAN :
NetBIOS Scope : (optional)
NetBIOS node type : Broadcast only (use when no WINS servers configured)
 Point-to-Point (no broadcast)
 Mixed-mode (Broadcast then Point-to-Point)
 Hybrid (Point-to-Point then Broadcast)
Primary WINS IP Address :
Secondary WINS IP Address :

ADD DHCP RESERVATION

Enable :
Computer Name : << Computer Name >>
IP Address :
MAC Address :
Clone Your PC's MAC Address
Add / Update Clear

DHCP RESERVATIONS LIST

Enable	Host Name	IP Address	MAC Address

NUMBER OF DYNAMIC DHCP CLIENTS

Host Name	IP Address	MAC Address	Expired Time
07869PCWIN7E	192.168.0.100	cc:52:af:49:e6:9c	6 Days 23 Hours 44 Minutes

Save Settings Don't Save Settings

WIRELESS

Router Settings

This section will allow you to configure the router settings.

Router IP Address: Enter the IP address of the router. The default IP address is 192.168.0.1.

If you change the IP address, once you click **Save Settings**, you will need to enter the new IP address in your browser in order to log in to the configuration utility in the future.

Subnet Mask: Enter the Subnet Mask. The default subnet mask is 255.255.255.0.

Device Name: Enter a name for the router.

Local Domain: Enter the domain name (Optional).

Enable DNS Relay: Uncheck the box to transfer the DNS server information from your ISP to your computers. If checked, your computers will use the router for a DNS server.

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

INTERNET WIRELESS SETTINGS NETWORK SETTINGS STORAGE MEDIA SERVER IPV6 MYDLINK SETTINGS

NETWORK SETTINGS

Use this section to configure the internal network settings of your router and also to configure the built-in DHCP server to assign IP addresses to computers on your network. The IP address that is configured here is the IP address that you use to access the Web-based management interface. If you change the IP address in this section, you may need to adjust your PC's network settings to access the network again.

Please note that this section is optional and you do not need to change any of the settings here to get your network up and running.

Save Settings Don't Save Settings

ROUTER SETTINGS

Use this section to configure the internal network settings of your router. The IP address that is configured here is the IP address that you use to access the Web-based management interface. If you change the IP address here, you may need to adjust your PC's network settings to access the network again.

Router IP Address : 192.168.0.1
 Default Subnet Mask : 255.255.255.0
 Host Name : dlinkrouter
 Local Domain Name : (optional)
 Enable DNS Relay :

Helpful Hints...

- If you already have a DHCP server on your network or are using static IP addresses on all the devices on your network, uncheck **Enable DHCP Server** to disable this feature.
- If you have devices on your network that should always have fixed IP addresses, add a **DHCP Reservation** for each such device.
- [More...](#)

DHCP Server Settings

DHCP stands for Dynamic Host Control Protocol. The DIR-860L has a built-in DHCP server. The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to "Obtain an IP Address Automatically". When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the DIR-860L. The DHCP Server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.

Enable DHCP Server: Check this box to enable the DHCP server on your router. Uncheck to disable this function.

DHCP IP Address Range: Enter the starting and ending IP addresses for the DHCP server's IP assignment range.

Note: If you statically (manually) assign IP addresses to your computers or devices, make sure the IP addresses are outside of this range or you may have an IP conflict.

DHCP Lease Time: The length of time for the IP address lease. Enter the lease time in minutes.

Always Broadcast: Enable this feature to broadcast your network's DHCP server to LAN/WLAN clients.

NetBIOS Announcement: NetBIOS allows LAN hosts to discover all other computers within the network, enable this feature to allow the DHCP Server to offer NetBIOS configuration settings.

Learn NetBIOS from WAN: Enable this feature to allow WINS information to be learned from the WAN side, disable to allow manual configuration.

NetBIOS Scope: This feature allows the configuration of a NetBIOS 'domain' name under which network hosts operates. This setting has no effect if the 'Learn NetBIOS information from WAN' option is activated.

NetBIOS Node: Select the different type of NetBIOS node; **Broadcast only**, **Point-to-Point**, **Mixed-mode**, and **Hybrid**.

WINS IP Address: Enter your WINS Server IP address(es).

DHCP SERVER SETTINGS

Use this section to configure the built-in DHCP server to assign IP address to the computers on your network.

Enable DHCP Server :

DHCP IP Address Range : 100 to 199 (addresses within the LAN subnet)

DHCP Lease Time : 10080 (minutes)

Always broadcast : (compatibility for some DHCP Clients)

NetBIOS announcement :

Learn NetBIOS from WAN :

NetBIOS Scope : (optional)

NetBIOS node type :

- Broadcast only (use when no WINS servers configured)
- Point-to-Point (no broadcast)
- Mixed-mode (Broadcast then Point-to-Point)
- Hybrid (Point-to-Point then Broadcast)

Primary WINS IP Address :

Secondary WINS IP Address :

DHCP Reservation

If you want a computer or device to always have the same IP address assigned, you can create a DHCP reservation. The router will assign the IP address only to that computer or device.

Note: This IP address must be within the DHCP IP Address Range.

Enable: Check this box to enable the reservation.

Computer Name: Enter the computer name or select from the drop-down menu and click <<.

IP Address: Enter the IP address you want to assign to the computer or device. This IP address must be within the DHCP IP Address Range.

MAC Address: Enter the MAC address of the computer or device.

Copy Your PC's MAC Address: If you want to assign an IP address to the computer you are currently on, click this button to populate the fields.

Save: Click **Save** to save your entry. You must click **Save Settings** at the top to activate your reservations.

DHCP Reservations List

DHCP Reservations List: Displays any reservation entries. Displays the host name (name of your computer or device), MAC Address, and IP address.

Enable: Check to enable the reservation.

Edit: Click the edit icon to make changes to the reservation entry.

Delete: Click to remove the reservation from the list.

DHCP RESERVATIONS LIST				
Enable	Host Name	IP Address	MAC Address	

NUMBER OF DYNAMIC DHCP CLIENTS			
Host Name	IP Address	MAC Address	Expired Time
DaveBook-Pro-2	192.168.0.100	00:25:4b:c3:55:3c	6 Days 23 Hours 57 Minutes

Storage

This page will allow you to set up access to files on an external USB hard drive¹ or thumb drive that is plugged into the router. You can do this through local network or from the Internet using either a web browser or an app on your smartphone or tablet. You can create users that can be allowed access to these files through SharePort Mobile services accessible through a web UI or on mobile devices using the SharePort Mobile app available for iOS and Android.

Enable SharePort Web Access: Check this box if you wish to be able to access SharePort through a browser as well as the mobile app.

HTTP Access Port: Enter the port you want to use when accessing SharePort using a web browser.

HTTPS Access Port: Enter the port you want to use when accessing SharePort through a secure connection using a web browser.

Allow Remote Access: Check this box if you wish to be able to access SharePort through a web browser over the Internet.

User Creation: To give a new user access to your SharePort storage, enter a User Name and Password here. You can add new users or choose existing users from the drop-down menu if you wish to edit or delete them.

Note: The Admin password is the same as the admin password for the router. The Guest password is "guest" and cannot be changed.

User List: This list displays all of the users with access to the SharePort Mobile content, what they can access, and their Read/Write Permissions.

Number of Devices: All devices you have set up for SharePort access will be listed here.

SharePort Web Access Link: This area will display the HTTP and HTTPS links to connect to your SharePort drive through a web browser from a device on your network.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various settings categories: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPV6, and MYDLINK SETTINGS. The main content area is titled 'STORAGE' and contains the following sections:

- STORAGE:** A text box explaining that Web File Access allows remote access to files on an SD card or USB storage drive. It includes 'Save Settings' and 'Don't Save Settings' buttons.
- SHAREPORT WEB ACCESS:** A section with a checked 'Enable SharePort Web Access' checkbox, input fields for 'HTTP Access Port' (8181) and 'HTTPS Access Port' (4433), and an unchecked 'Allow Remote Access' checkbox.
- 10 -- USER CREATION:** A section with input fields for 'User Name', 'Password', and 'Verify Password', a dropdown menu for 'User Name', and an 'Add/Edit' button.
- USER LIST:** A table listing users with columns for No., User Name, Access Path, Permission, Edit, and Delete.

No.	User Name	Access Path	Permission	Edit	Delete
1	admin	/	Read/Write		
2	Guest	(1) none	Read Only		
- NUMBER DEVICES:0:** A section with a table for 'Device', 'Total Space', and 'Free Space'.
- SHAREPORT ACCESS LINK:** A section with a text box and 'Save Settings' and 'Don't Save Settings' buttons.

The bottom of the page features a 'WIRELESS' section.

¹ Supports capacities of up to 1TB for USB storage drives.

Media Server

This page will allow you to enable a DLNA Media Server. DLNA (Digital Living Network Alliance) is the standard for the interoperability of Network Media Devices (NMDs). The user can enjoy multimedia applications (music, pictures and videos) on your network connected PC or media devices. If you agree to share media with devices, any computer or device that connects to your network can play your shared music, pictures and videos.

Note: *The shared media may not be secure. Allowing any device to stream is recommended only on secure networks.*

DLNA Server: Check to enable DLNA Media Server functions.

DLNA Server Name: Choose a name for your DLNA media server so that it can be found.

Folder: Choose the location of the folder you wish to share or check the box to use the root folder of the entire drive.

iTunes Server: Check to enable iTunes Server functions.

Folder: Choose the location of the iTunes Library folder you wish to share or check the box to use the root folder if it is located on the root folder of the connected drive.

USB 3.0 Use this setting to enable USB 3.0 functionality for the USB port on the back of the router. USB 3.0 provides high-speed transfer speeds with compatible devices. This setting is disabled by default, which means that the USB port will operate at the USB 2.0 specification.



D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

MEDIA SERVER

DLNA (Digital Living Network Alliance) is the standard for the Interoperability of Network Media Devices (NMDs). The user can enjoy multi-media applications (music, pictures and videos) on your network connected PC or media devices. The iTunes server will allow iTunes software to automatically detect and play music from the router.

NOTE: The shared media may not be secure. Allowing any devices to stream is recommended only on secure networks.

Save Settings Don't Save Settings

DLNA SERVER

DLNA Server : Enable Disable

DLNA Server Name : DIR860L_DMS

Folder : root / Browse

iTunes SERVER

iTunes Server : Enable Disable

Folder : root / Browse

USB 3.0

USB 3.0 : Enable Disable

Save Settings Don't Save Settings

WIRELESS

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IPv6

On this page, you can configure the IPv6 Connection type. There are two ways to set up the IPv6 Internet connection. You can use the Web-based IPv6 Internet Connection Setup Wizard, or you can manually configure the connection.

If you are a beginner who has not configured a router before, click on the **IPv6 Internet Connection Setup Wizard** button and the router will guide you through a few simple steps to get your network up and running.

If you are an advanced user who has configured a router before, click on the **Manual IPv6 Internet Connection Setup** button to input all the settings manually.

The screenshot displays the D-Link web interface for the DIR-860L router. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration categories: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPV6, and MYDLINK SETTINGS. The main content area is titled "IPv6 INTERNET CONNECTION" and provides instructions on how to set up the connection. It offers three options: using the "IPv6 Internet Connection Setup Wizard", configuring "MANUAL IPV6 LOCAL CONNECTIVITY SETUP", or configuring "MANUAL IPV6 INTERNET CONNECTION SETUP". A "Helpful Hints..." sidebar on the right provides additional guidance for users who are new to networking or advanced users.

DIR-860L //	SETUP	ADVANCED	TOOLS	STATUS	SUPPORT
INTERNET	IPv6 INTERNET CONNECTION				Helpful Hints... <ul style="list-style-type: none"> • If you are new to networking and have never configured a router before, click on IPv6 Internet Connection Setup Wizard and the router will guide you through a few simple steps to get your network up and running. • If you consider yourself an advanced user and have configured a router before, click Manual IPv6 Internet Connection Setup to input all the settings manually. • More...
WIRELESS SETTINGS	There are two ways to set up your IPv6 Internet connection. You can use the Web-based IPv6 Internet Connection Setup Wizard, or you can manually configure the connection.				
NETWORK SETTINGS	IPv6 INTERNET CONNECTION SETUP WIZARD If you would like to utilize our easy to use Web-based Wizard to assist you in connecting your new D-Link Systems Router to the IPv6 Internet, click on the button below. <input type="button" value="IPv6 Internet Connection Setup Wizard"/>				
STORAGE	MANUAL IPV6 LOCAL CONNECTIVITY SETUP If you would like to configure the IPv6 local connectivity settings of your D-Link Router, then click on the button below. <input type="button" value="IPv6 Local Connectivity Settings"/>				
MEDIA SERVER	MANUAL IPV6 INTERNET CONNECTION SETUP If you would like to configure the IPv6 Internet settings of your new D-Link Router manually, then click on the button below. <input type="button" value="Manual IPv6 Internet Connection Setup"/>				
IPV6					
MYDLINK SETTINGS					
WIRELESS					

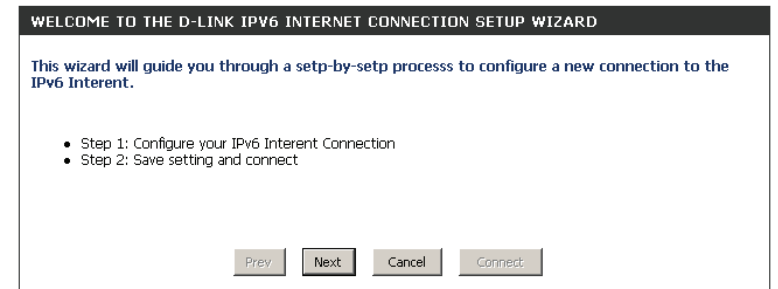
IPv6 Internet Connection Setup Wizard

On this page, the you can configure the IPv6 Connection type using the IPv6 Internet Connection Setup Wizard.

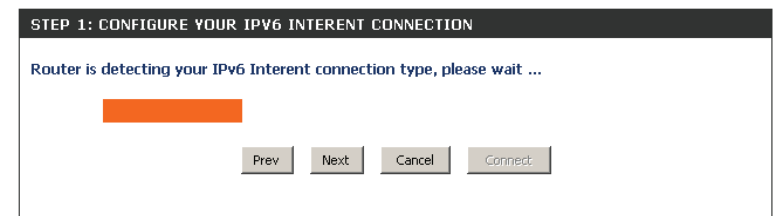
Click the **IPv6 Internet Connection Setup Wizard** button and the router will guide you through a few simple steps to get your network up and running.



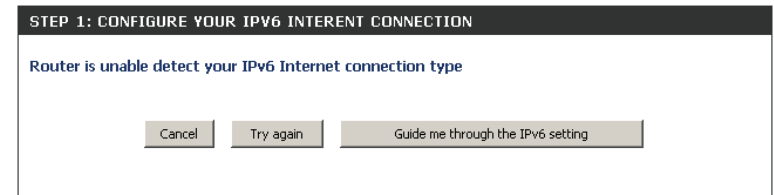
Click **Next** to continue to the next page. Click **Cancel** to discard the changes made and return to the main page.



The router will attempt to detect whether it is possible to obtain the IPv6 Internet connection type automatically. If this succeeds then you will be guided through the input of the appropriate parameters for the connection type found.



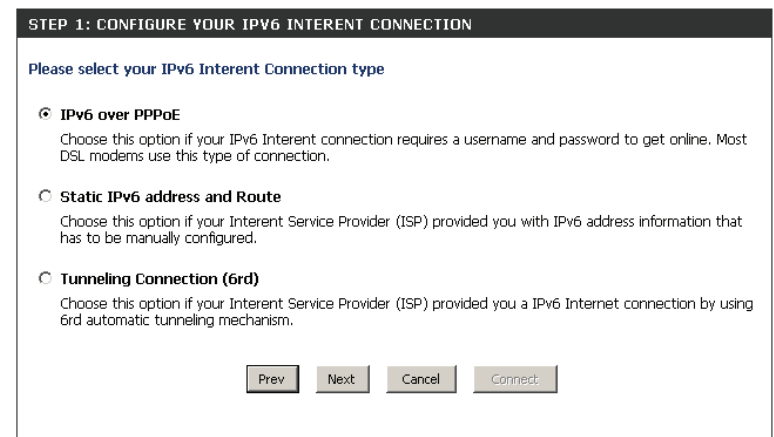
However, if the automatic detection fails, you will be prompted to either **Try again** or to click on the **Guide me through the IPv6 settings** button to initiate the manual continuation of the wizard.



There are several connection types to choose from. If you are unsure of your connection method, please contact your IPv6 Internet Service Provider.

Note: If using the PPPoE option, you will need to ensure that any PPPoE client software on your computers has been removed or disabled. The 3 options available on this page are **IPv6 over PPPoE**, **Static IPv6 address and Route**, and **Tunneling Connection**.

Choose the required IPv6 Internet Connection type and click on the **Next** button to continue. Click on the **Prev** button to return to the previous page. Click on the **Cancel** button to discard all the changes made and return to the main page.



Click on the **Next** button to continue. Click on the **Prev** button to return to the previous page.

Click on the **Cancel** button to discard all the changes made and return to the main page.

IPv6 over PPPoE

After selecting the IPv6 over PPPoE option, you will be able to configure the IPv6 Internet connection that requires a username and password to get online. Most DSL modems use this type of connection.

The following parameters will be available for configuration:

PPPoE Session: Select the PPPoE Session value used here. This option will state that this connection shares its information with the already configured IPv6 PPPoE connection, or the user can create a new PPPoE connection here.

User Name: Enter the PPPoE username used here. If you do not know your user name, please contact your ISP.

Password: Enter the PPPoE password used here. If you do not know your password, please contact your ISP.

Verify Password: Re-enter the PPPoE password used here.

Service Name: Enter the service name for this connection here. This option is optional.

SET USERNAME AND PASSWORD CONNECTION (PPPOE)

To set up this connection you will need to have a Username and Password from your IPv6 Internet Service Provider. If you do not have this information, please contact your ISP.

PPPoE Session : Share with IPv4 Create a new session

User Name :

Password :

Verify Password :

Service Name : (optional)

Note: You may also need to provide a Service Name. If you do not have or know this information, please contact your ISP.

Static IPv6 Address Connection

This mode is used when your ISP provides you with a set of IPv6 addresses that does not change. The IPv6 information is manually entered in your IPv6 configuration settings. You must enter the IPv6 address, Subnet Prefix Length, Default Gateway, Primary DNS Server, and Secondary DNS Server. Your ISP provides you with all of this information.

Use Link-Local Address: The Link-local address is used by nodes and routers when communicating with neighboring nodes on the same link. This mode enables IPv6-capable devices to communicate with each other on the LAN side.

IPv6 Address: Enter the WAN IPv6 address for the router here.

Subnet Prefix Length: Enter the WAN subnet prefix length value used here.

Default Gateway: Enter the WAN default gateway IPv6 address used here.

Primary DNS Address: Enter the WAN primary DNS Server address used here.

Secondary DNS Address: Enter the WAN secondary DNS Server address used here.

LAN IPv6 Address: These are the settings of the LAN (Local Area Network) IPv6 interface for the router. The router's LAN IPv6 Address configuration is based on the IPv6 Address and Subnet assigned by your ISP. (A subnet with prefix /64 is supported in LAN.)

SET STATIC IPv6 ADDRESS CONNECTION

To set up this connection you will need to have a complete list of IPv6 information provided by your IPv6 Internet Service Provider. If you have a Static IPv6 connection and do not have this information, please contact your ISP.

Use Link-Local Address :

IPv6 Address : FE80::218:E7FF:FE95:689F

Subnet Prefix Length : 64

Default Gateway :

Primary DNS Address :

Secondary DNS Address :

LAN IPv6 Address : /64

Prev Next Cancel Connect

Tunneling Connection (6rd)

After selecting the Tunneling Connection (6rd) option, you can configure the IPv6 6rd connection settings.

6rd IPv6 Prefix: Enter the 6rd IPv6 address and prefix value used here.

IPv4 Address: Enter the IPv4 address used here.

Mask Length: Enter the IPv4 mask length used here.

Assigned IPv6 Prefix: Displays the IPv6 assigned prefix value here.

6rd Border Relay IPv4 Address: Enter the 6rd border relay IPv4 address used here.

IPv6 DNS Server: Enter the primary DNS Server address used here.

SET UP 6RD TUNNELING CONNECTION

To set up this 6rd tunneling connection you will need to have the following information from your IPv6 Internet Service Provider. If you do not have this information, please contact your ISP.

6rd IPv6 Prefix : [] / 32

IPv4 Address : 192.168.1.2 Mask Length : [0]

Assign IPv6 Prefix : None

Tunnel Link-Local Address : FE80::COA8:0102/64

6rd Border Relay IPv4 Address : []

IPv6 DNS Server : []

Prev Next Cancel Connect

The IPv6 Internet Connection Setup Wizard is complete.

Click on the **Connect** button to continue. Click on the **Prev** button to return to the previous page. Click on the **Cancel** button to discard all the changes made and return to the main page.

SETUP COMPLETE!

The IPv6 Internet Connection Setup Wizard has completed. Click the Connect button to save your settings and reboot the router.

Prev Next Cancel Connect

Manual IPv6 Local Connectivity Setup

You can set up a local-only IPv6 Internet connection as well. If you want to configure an IPv6 connection that will not connect to the Internet, click on the **Manual IPv6 Local Connectivity Settings** button.

Enable ULA: Click here to enable Unique Local IPv6 Unicast Addresses settings.

Use Default ULA Prefix: Checking this box will automatically configure the ULA prefix for the default setting.

ULA Prefix: If you wish to choose your own ULA prefix, enter it here.

Current IPv6 ULA Settings: This section will display the current settings for your IPv6 ULA.

The screenshot displays the D-Link DIR-860L web interface. The top navigation bar includes the D-Link logo and tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration sections: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPv6, and MYDLINK SETTINGS. The main content area is titled "IPv6 LOCAL CONNECTIVITY SETTINGS" and contains the following information:

- IPv6 LOCAL CONNECTIVITY SETTINGS:** A section with a warning that ULA is for local communications only. It includes "Save Settings" and "Don't Save Settings" buttons.
- IPv6 ULA SETTINGS:**
 - Enable ULA :
 - Use default ULA prefix :
 - ULA Prefix : /64
- CURRENT IPv6 ULA SETTINGS:**
 - Current ULA Prefix : /64
 - LAN IPv6 ULA : /64

At the bottom of the main content area, there are "Save Settings" and "Don't Save Settings" buttons. A "Helpful Hints..." sidebar on the right provides additional context about ULA.

IPv6 Manual Setup

There are several connection types to choose from: Auto Detection, Static IPv6, Autoconfiguration (SLAAC/DHCPv6), PPPoE, IPv6 in IPv4 Tunnel, 6to4, 6rd, and Link-local. If you are unsure of your connection method, please contact your IPv6 Internet Service Provider.

Note: If using the PPPoE option, you will need to ensure that any PPPoE client software on your computers has been removed or disabled.

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

IPv6

Use this section to configure your IPv6 Connection Type. If you are unsure of your connection method, please contact your Internet Service Provider.

Save Settings Don't Save Settings

IPv6 CONNECTION TYPE

Choose the mode to be used by the router to connect to the IPv6 Internet.

My IPv6 Connection is : Auto Detection

IPv6 DNS SETTINGS

Obtain DNS server address automatically or enter a specific DNS server address.

Obtain IPv6 DNS Servers automatically
 Use the following IPv6 DNS Servers

Primary DNS Server :

Secondary DNS Server :

LAN IPv6 ADDRESS SETTINGS

Use this section to configure the internal network settings of your router. If you change the LAN IPv6 Address here, you may need to adjust your PC network settings to access the network again.

Enable DHCP-PD :

LAN IPv6 Address : /64

LAN IPv6 Link-Local Address : fe80::2de:faff:fe1a:100 /64

ADDRESS AUTOCONFIGURATION SETTINGS

Use this section to setup IPv6 Autoconfiguration to assign IP addresses to the computers on your network. You can also enable DHCP-PD to delegate prefixes for routers in your LAN.

Enable Automatic IPv6 address assignment :

Enable Automatic DHCP-PD in LAN :

Autoconfiguration Type : SLAAC+Stateless DHCP

Router Advertisement Lifetime : (minutes)

Save Settings Don't Save Settings

Helpful Hints...

- When configuring the router to access the IPv6 internet, be sure to choose the correct IPv6 Connection Type from the drop down menu. If you are unsure of which option to choose, contact your internet Service Provider(ISP).
- If you are having trouble accessing the IPv6 internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.
- More...

WIRELESS

Static IPv6

My IPv6 Connection Is: Select **Static IPv6** from the drop-down menu.

Use Link-Local Address: Enter the address settings supplied by your Internet provider (ISP).

Subnet Prefix Length: Enter a subnet prefix length.

IPv6 Default Gateway: Enter the default gateway for your IPv6 connection.

Primary/Secondary IPv6 DNS Servers: Enter the primary and secondary DNS server addresses.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN Link-Local Address: Displays the router's LAN Link-Local Address.

Enable Automatic IPv6 Address Assignment: Check to enable the Autoconfiguration feature.

Autoconfiguration Type: Choose either **Stateful DHCPv6**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6** from the drop-down menu.

Router Advertisement Lifetime: Enter the IPv6 Address Lifetime (in minutes).

The screenshot shows the D-Link DIR-860L web interface for IPv6 configuration. The main navigation menu includes INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPv6, and MYLINK SETTINGS. The current page is titled 'IPv6' and is under the 'SETUP' tab. The 'IPv6 CONNECTION TYPE' section shows 'My IPv6 Connection Is' set to 'Static IPv6'. The 'WAN IPv6 ADDRESS SETTINGS' section includes 'Use Link-Local Address' (checked), 'IPv6 Address' (fe80::2de:faff:fe3a:100), 'Subnet Prefix Length' (64), 'Default Gateway', 'Primary DNS Server', and 'Secondary DNS Server'. The 'LAN IPv6 ADDRESS SETTINGS' section includes 'LAN IPv6 Address' and 'LAN IPv6 Link-Local Address' (fe80::2de:faff:fe1a:100/64). The 'ADDRESS AUTOCONFIGURATION SETTINGS' section includes 'Enable Automatic IPv6 address assignment' (checked), 'Autoconfiguration Type' (SLAAC+Stateless DHCP), and 'Router Advertisement Lifetime' (minutes). There are 'Save Settings' and 'Don't Save Settings' buttons at the bottom of the page.

Auto Configuration

My IPv6 Connection Is: Select **Auto Detection** from the drop-down menu.

IPv6 DNS Settings: Select either **Obtain DNS server address automatically** or **Use the following DNS Address**.

Primary/Secondary DNS Address: Enter the primary and secondary DNS server addresses.

Enable DHCP-PD: Check this box to enable DHCP-PD services.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN Link-Local Address: Displays the Router's LAN Link-Local Address.

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Enable Automatic DHCP-PD in LAN: Check this box to automatically enable DHCP-PD services.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

Router Advertisement Lifetime: Enter the IPv6 Address Lifetime (in minutes).

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

IPv6

Use this section to configure your IPv6 Connection Type. If you are unsure of your connection method, please contact your Internet Service Provider.

Save Settings Don't Save Settings

IPv6 CONNECTION TYPE

Choose the mode to be used by the router to connect to the IPv6 Internet.

My IPv6 Connection is : Autoconfiguration(SLAAC/DHCPv6)

IPv6 DNS SETTINGS

Obtain DNS server address automatically or enter a specific DNS server address.

Obtain IPv6 DNS Servers automatically
 Use the following IPv6 DNS Servers

Primary DNS Server :
 Secondary DNS Server :

LAN IPv6 ADDRESS SETTINGS

Use this section to configure the internal network settings of your router. If you change the LAN IPv6 Address here, you may need to adjust your PC network settings to access the network again.

Enable DHCP-PD :
 LAN IPv6 Address : /64
 LAN IPv6 Link-Local Address : fe80::2de:faff:fe1a:100 /64

ADDRESS AUTOCONFIGURATION SETTINGS

Use this section to setup IPv6 Autoconfiguration to assign IP addresses to the computers on your network. You can also enable DHCP-PD to delegate prefixes for routers in your LAN.

Enable Automatic IPv6 address assignment :
 Enable Automatic DHCP-PD in LAN :
 Autoconfiguration Type : SLAAC+Stateless DHCP
 Router Advertisement Lifetime : (minutes)

Save Settings Don't Save Settings

WIRELESS

Helpful Hints...

- When configuring the router to access the IPv6 internet, be sure to choose the correct IPv6 Connection Type from the drop down menu. If you are unsure of which option to choose, contact your Internet Service Provider(ISP).
- If you are having trouble accessing the IPv6 internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.
- More...

PPPoE

My IPv6 Connection Is: Select **PPPoE** from the drop-down menu.

PPPoE Session: Enter the PPPoE account settings supplied by your Internet provider.

Address Mode: Select **Static** if your ISP assigned you an IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

IP Address: Enter the IP address (Static PPPoE only).

Username: Enter your PPPoE user name.

Password: Enter your PPPoE password and retype the password in the next box.

Enter the ISP Service Name (optional).

Service Name:

Select either **Always-on**, **On-Demand**, or **Manual**.

Reconnection mode:

Enter a maximum idle time during which the Internet connection is maintained during inactivity.

Maximum Idle Time:

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1492 is the default MTU.

IPv6 DNS Settings: Select either **Obtain DNS server address automatically** or **Use the following DNS Address**.

Primary/Secondary DNS Address: Enter the primary and secondary DNS server addresses.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various settings categories: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPv6, and MYLINK SETTINGS. The main content area is titled 'IPv6' and contains the following sections:

- IPv6 Connection Type:** A dropdown menu labeled 'My IPv6 Connection is' is set to 'PPPoE'.
- PPPoE Internet Connection Type:** A section for entering ISP information.
 - PPPoE Session:** Radio buttons for 'Share with IPv4' (selected) and 'Create a new session'.
 - Address Mode:** Radio buttons for 'Dynamic IP' (selected) and 'Static IP'.
 - IP Address:** Text input field.
 - Username:** Text input field.
 - Password:** Text input field.
 - Verify Password:** Text input field.
 - Service Name:** Text input field with '(optional)' label.
 - Reconnect Mode:** Radio buttons for 'Always on', 'On demand' (selected), and 'Manual'.
 - Maximum Idle Time:** Text input field with '(minutes, 0=infinite)' label.
 - MTU:** Text input field with '(bytes) MTU default = 1492' label.
- IPv6 DNS Settings:** A section for obtaining DNS server addresses.
 - Text: 'Obtain DNS server address automatically or enter a specific DNS server address.'
 - Radio buttons for 'Obtain IPv6 DNS Servers automatically' (selected) and 'Use the following IPv6 DNS Servers'.
 - Primary DNS Server:** Text input field.
 - Secondary DNS Server:** Text input field.

On the right side, there is a 'Helpful Hints...' section with a 'More...' link.

Enable DHCP-D: Check this box to enable DHCP prefix delegation for each LAN on the network.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

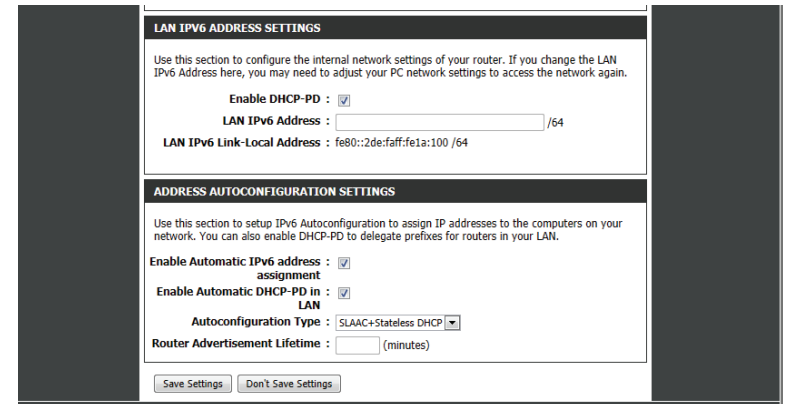
LAN Link-Local Address: Displays the router's LAN Link-Local Address.

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Enable Automatic DHCP-PD in LAN: Check this box to enable automatic configuration of the DHCP prefix delegation for each LAN on the network.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

IPv6 Address Lifetime: Enter the IPv6 Address Lifetime (in minutes).



IPv6 in IPv4 Tunneling

My IPv6 Connection Is: Select **IPv6 in IPv4 Tunnel** from the drop-down menu.

Remote IPv4 Address: Enter the IPv4 remote address you will use.

Remote IPv6 Address: Enter the IPv6 remote address you will use.

Local IPv4 Address: Enter the IPv4 local address you will use.

Local IPv6 Address: Enter the IPv6 local address you will use.

IPv6 DNS Settings: Select either **Obtain DNS server address automatically** or **Use the following DNS Address**.

Primary/Secondary DNS Address: Enter the primary and secondary DNS server addresses.

Enable DHCP-D: Check this box to enable DHCP prefix delegation for each LAN.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN IPv6 Lin-Local Address: Displays the router's LAN Link-Local Address.

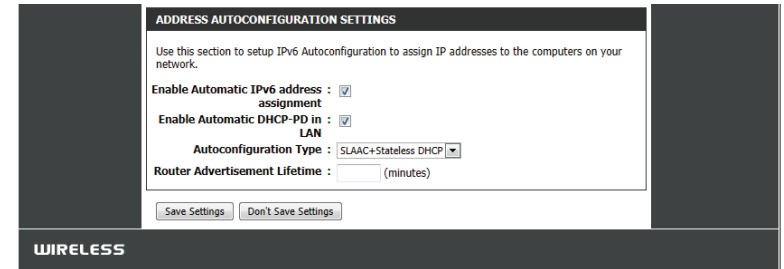
The screenshot displays the D-Link configuration interface for IPv6 settings. The left sidebar shows navigation options: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPv6, and MYLINK SETTINGS. The main content area is titled 'IPv6' and includes a 'Helpful Hints...' section on the right. The 'IPv6 CONNECTION TYPE' section has a dropdown menu set to 'IPv6 in IPv4 Tunnel'. The 'IPv6 IN IPv4 TUNNEL SETTINGS' section contains input fields for Remote IPv4 Address, Remote IPv6 Address, Local IPv4 Address, Local IPv6 Address, and Subnet Prefix Length. The 'IPv6 DNS SETTINGS' section offers two options: 'Obtain IPv6 DNS Servers automatically' (selected) and 'Use the following IPv6 DNS Servers'. The 'LAN IPv6 ADDRESS SETTINGS' section includes a checked 'Enable DHCP-PD' checkbox and fields for 'LAN IPv6 Address' and 'LAN IPv6 Link-Local Address' (pre-filled with fe80::2de:faff:fe1a:100/64).

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Enable Automatic DHCP-PD in LAN: Check this box to enable automatic configuration of the DHCP prefix delegation for each LAN on the network.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

Router Advertisement Lifetime: Enter the Router Advertisement Lifetime (in minutes).



6to4

My IPv6 Connection Is: Select **6to4** from the drop-down menu.

6to4 Address: Enter the IPv6 settings supplied by your ISP.

6to4 Relay: Enter the IPv6 relay supplied by your ISP.

Primary/Secondary DNS Address: Enter the primary and secondary DNS server addresses.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN Link-Local Address: Displays the Router's LAN Link-Local Address.

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

Router Advertisement Lifetime: Enter the IPv6 Address Lifetime (in minutes).

The screenshot displays the IPv6 configuration interface for a D-Link DIR-860L router. The main navigation tabs include SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The current page is titled 'IPv6' and contains several sections:

- IPv6:** A general instruction to configure the IPv6 connection type, with 'Save Settings' and 'Don't Save Settings' buttons.
- IPv6 CONNECTION TYPE:** A section where the user chooses the mode to use. The 'My IPv6 Connection is' dropdown menu is currently set to '6to4'.
- WAN IPv6 ADDRESS SETTINGS:** A section for entering IPv6 address information from the ISP. It includes input fields for '6to4 Address', '6to4 Relay', 'Primary DNS Server', and 'Secondary DNS Server'.
- LAN IPv6 ADDRESS SETTINGS:** A section for configuring internal network settings. It shows the 'LAN IPv6 Address' as 'XXXX:XXXX:XXXX:XXXX::1 /64' and the 'LAN IPv6 Link-Local Address' as 'fe80::2de:faff:fe1a:100 /64'.
- ADDRESS AUTOCONFIGURATION SETTINGS:** A section for setting up IPv6 autoconfiguration. It includes a checked checkbox for 'Enable Automatic IPv6 address assignment', a dropdown for 'Autoconfiguration Type' set to 'SLAAC+Stateless DHCP', and a field for 'Router Advertisement Lifetime' set to 0 minutes.

At the bottom of the configuration area, there are 'Save Settings' and 'Don't Save Settings' buttons. A 'WIRELESS' tab is visible at the very bottom of the page.

6rd

My IPv6 Connection Is: Select **6rd** from the drop-down menu.

Enable Hub and Spoke Mode: Check this box if you want to minimize the number of routes to the destination by using a hub and spoke method of networking.

6rd Configuration: Choose the **6rd DHCPv4 Option** to automatically discover and populate the data values, or **Manual Configuration** to enter the settings yourself.

6rd IPv6 Prefix: Enter the 6rd IPv6 prefix settings supplied by your ISP.

IPv4 Address: Your IPv4 address will appear here.

Mask Length: Enter the desired IPv4 mask length.

Assigned IPv6 Prefix: When an IPv6 prefix is assigned, it will appear here.

6rd Border Relay IPv4 Address: Enter the 6rd Border Relay IPv4 address settings supplied by your ISP.

Primary/Secondary DNS Address: Enter the primary and secondary DNS server addresses.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN Link-Local Address: Displays the Router's LAN Link-Local Address.

The screenshot shows the D-Link DIR-860L web interface for IPv6 configuration. The main menu includes INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPV6, and MYDLINK SETTINGS. The IPv6 settings are divided into several sections:

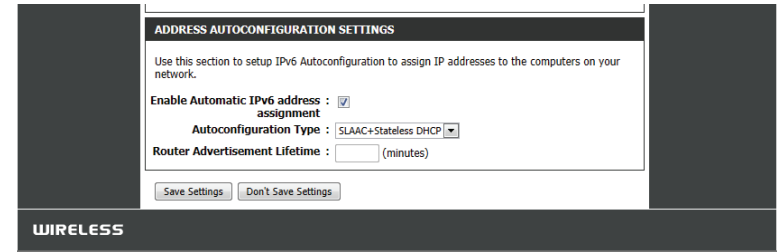
- IPV6:** Introduction text and 'Save Settings' / 'Don't Save Settings' buttons.
- IPV6 CONNECTION TYPE:** A dropdown menu for 'My IPv6 Connection is' set to '6rd'.
- WAN IPV6 ADDRESS SETTINGS:**
 - Enable Hub and Spoke Mode:
 - 6rd Configuration: 6rd DHCPv4 option, Manual Configuration
 - 6rd IPv6 Prefix: [] / []
 - IPv4 Address: [] Mask Length: []
 - Assigned IPv6 Prefix: []
 - 6rd Border Relay IPv4 Address: []
 - Primary DNS Server: []
 - Secondary DNS Server: []
- LAN IPV6 ADDRESS SETTINGS:**
 - LAN IPv6 Address: []
 - LAN IPv6 Link-Local Address: fe80::2de:faff:fe1a:100 /64
- ADDRESS AUTOCONFIGURATION SETTINGS:**
 - Enable Automatic IPv6 address assignment:
 - Autoconfiguration Type: SLAAC+Stateless DHCP
 - Router Advertisement Lifetime: [] (minutes)

Buttons for 'Save Settings' and 'Don't Save Settings' are located at the bottom of each section. A 'Helpful Hints...' sidebar on the right provides additional guidance.

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

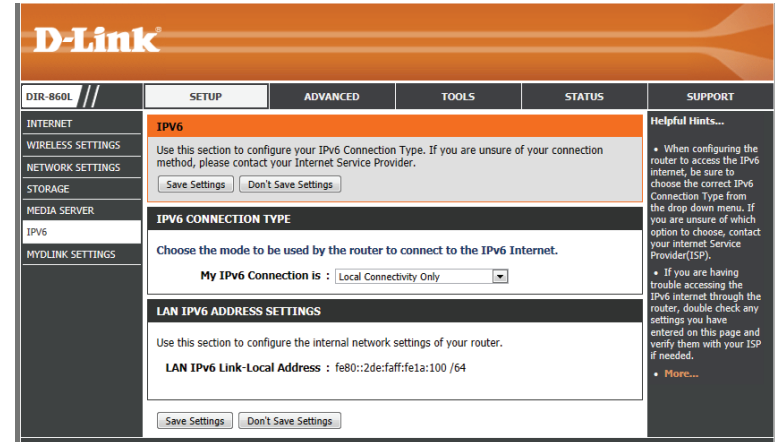
Router Advertisement Lifetime: Enter the IPv6 Address Lifetime (in minutes).



Link-Local Connectivity

My IPv6 Connection Is: Select **Link-Local Only** from the drop-down menu.

LAN IPv6 Address Settings: Displays the IPv6 address of the router.



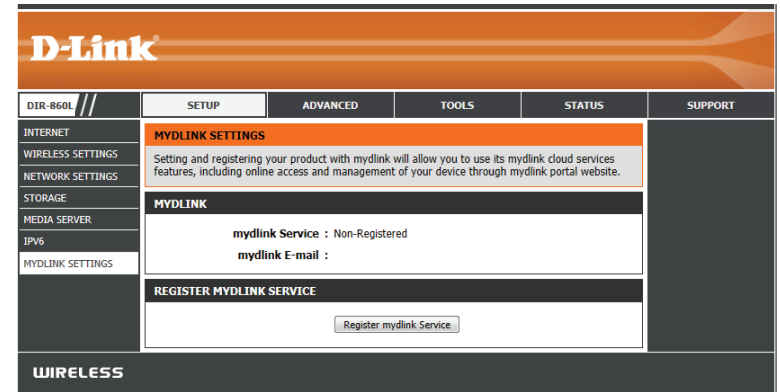
mydlink Settings

Devices that are mydlink-enabled can be accessed and managed through the mydlink website and by using mydlink mobile apps for iOS and Android. You cannot take advantage of these features without a mydlink account. If you have a mydlink account already, you can log in when you first set up the router, or by visiting this setup page.

mydlink Service: Displays whether your device is registered with a mydlink account or not.

mydlink E-mail: Displays the email address associated with your mydlink account if you have an active account.

Register mydlink Service: Click to go to the mydlink website to register your device or edit your settings.



Advanced Virtual Server

This page will allow you to open a single port. If you would like to open a range of ports, refer to the next page.

Name: Enter a name for the rule or select an application from the drop-down menu. Select an application and click << to populate the fields.

IP Address: Enter the IP address of the computer on your local network that you want to allow the incoming service to. If your computer is receiving an IP address automatically from the router (DHCP), your computer will be listed in the "Computer Name" drop-down menu.

Private Port/ Public Port: Enter the port that you want to open next to Private Port and Public Port. The private and public ports are usually the same. The public port is seen from the Internet side, and the private port is used by the application on the computer within your local network.

Protocol: Select **TCP**, **UDP**, or **Both** from the drop-down menu.

Schedule: The schedule of time when the Virtual Server Rule will be enabled. The schedule may be set to **Always**, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section.

Inbound Filter: Select **Allow All** (most common) or a created Inbound filter. You may create your own inbound filters in the **Advanced > Inbound Filter** page.

D-Link

DIR-860L //

SETUP ADVANCED TOOLS STATUS SUPPORT

VIRTUAL SERVER

The Virtual Server option allows you to define a single public port on your router for redirection to an internal LAN IP Address and Private LAN port if required. This feature is useful for hosting online services such as FTP or Web Servers.

Save Settings Don't Save Settings

24 - VIRTUAL SERVERS LIST

Remaining number of rules that can be created: 24

	Name	IP Address	Port	Traffic Type	Schedule
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always
<input type="checkbox"/>	<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Inbound Filter Allow All

Helpful Hints...

- Check the Application Name drop down menu for a list of predefined server types. If you select one of the predefined server types, click the arrow button next to the drop down menu to fill out the corresponding fields.
- You can select a computer from the list of DHCP clients in the Computer Name drop down menu, or you can manually enter the IP address of the computer at which you would like to open the specified port.
- Select a schedule for when the virtual server will be enabled. If you do not see the schedule you need in the list of schedules, go to the Tools > Schedules screen and create a new schedule.
- Select a filter that restricts the Internet hosts that can access this virtual server to hosts that you trust. If you do not see the filter you need in the list of filters, go to the Advanced > Inbound Filter screen and create a new filter.
- More...

Port Forwarding

This page will allow you to open a single port or a range of ports.

Name: Enter a name for the rule or select an application from the drop-down menu. Select an application and click to populate the fields.

IP Address: Enter the IP address of the computer on your local network that you want to allow the incoming service to. If your computer is receiving an IP address automatically from the router (DHCP), your computer will be listed in the "Computer Name" drop-down menu. Select your computer and click <<.

TCP/UDP: Enter the TCP and/or UDP port or ports that you want to open. You can enter a single port or a range of ports. Separate ports with a comma. Example: 24,1009,3000-4000

Schedule: The schedule of time when the Virtual Server Rule will be enabled. The schedule may be set to **Always**, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section.

Inbound Filter: Select **Allow All** (most common) or a created Inbound filter. You may create your own inbound filters in the **Advanced > Inbound Filter** page.

D-Link

DIR-860L //

SETUP ADVANCED TOOLS STATUS SUPPORT

PORT FORWARDING

This option is used to open multiple ports or a range of ports in your router and redirect data through those ports to a single PC on your network. This feature allows you to enter ports in the format, Port Ranges (100-150), Individual Ports (80, 68, 888), or Mixed (1020-5000, 689). This option is only applicable to the INTERNET session.

Save Settings Don't Save Settings

24 -- PORT FORWARDING RULES

Remaining number of rules that can be created: 24

Name	IP Address	Application Name	Ports to Open	Schedule	Inbound Filter
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Application Name	TCP	Schedule Always	Inbound Filter Allow All
<input type="checkbox"/>	<input type="text"/>	<< Computer Name	UDP	Schedule Always	Inbound Filter Allow All

Helpful Hints...

- Check the **Application Name** drop-down menu for a list of pre-defined applications that you can select from. If you select one of the pre-defined applications, click the arrow button next to the drop-down menu to fill out the appropriate fields.
- You can select your computer from the list of DHCP clients in the **Computer Name** drop-down menu, or enter the IP address manually of the computer you would like to open the specified port to.
- Select a schedule for when the port forwarding will be enabled. If you do not see the schedule you need in the list of schedules, go to the **Tools > Schedules** screen and create a new schedule.
- You can enter ports in various formats: Range (50-100) Individual (60, 68, 888) Mixed (1020-5000, 689)
- More...

Application Rules

Some applications, such as Internet gaming, video conferencing, Internet telephony and others, require multiple connections. These applications have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the DIR-860L. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the firewall (public) ports associated with the trigger port to open them for inbound traffic.

Name: Enter a name for the rule. You may select a pre-defined application from the drop-down menu and click.

Trigger: This is the port used to trigger the application. It can be either a single port or a range of ports.

Traffic Type: Select the protocol of the trigger port (TCP, UDP, or Both).

Firewall: This is the port number on the Internet side that will be used to access the application. You may define a single port or a range of ports. You can use a comma to add multiple ports or port ranges.

Traffic Type: Select the protocol of the firewall port (TCP, UDP, or Both).

Schedule: The schedule of time when the Application Rule will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'D-Link', 'DIR-860L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration sections: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES (selected), QOS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER, INBOUND FILTER, FIREWALL SETTINGS, ROUTING, ADVANCED WIRELESS, WIRELESS PROTECTED SETUP, ADVANCED NETWORK, GUEST ZONE, IPV6 FIREWALL, and IPV6 ROUTING.

The main content area is titled 'APPLICATION RULES' and contains the following text:

The Application Rules option is used to open single or multiple ports in your firewall when the router senses data sent to the Internet on an outgoing "Trigger" port or port range. Special Application rules apply to all computers on your internal network.

Buttons: Save Settings, Don't Save Settings

Below this is a table titled '24 -- APPLICATION RULES' with the note 'Remaining number of rules that can be created: 24'. The table has the following columns: Name, Application, Port, Traffic Type, and Schedule. There are 10 rows of rules, each with a checkbox in the Name column.

Name	Application	Port	Traffic Type	Schedule
<input type="checkbox"/>	Name << Application Name >>	Trigger	All	Always
<input type="checkbox"/>	Name << Application Name >>	Firewall	All	Always
<input type="checkbox"/>	Name << Application Name >>	Trigger	All	Always
<input type="checkbox"/>	Name << Application Name >>	Firewall	All	Always
<input type="checkbox"/>	Name << Application Name >>	Trigger	All	Always
<input type="checkbox"/>	Name << Application Name >>	Firewall	All	Always
<input type="checkbox"/>	Name << Application Name >>	Trigger	All	Always
<input type="checkbox"/>	Name << Application Name >>	Firewall	All	Always
<input type="checkbox"/>	Name << Application Name >>	Trigger	All	Always
<input type="checkbox"/>	Name << Application Name >>	Firewall	All	Always

On the right side, there is a 'Helpful Hints...' section with the following text:

• Use this feature if you are trying to execute one of the listed network applications and it is not communicating as expected.

• Use the Application Name drop-down menu to view a list of pre-defined applications that you can select from. If you select one of the pre-defined applications, click the arrow button next to the drop-down menu to fill out the appropriate fields.

• Select a schedule for when the service will be enabled. If you do not see the schedule you need in the list of schedules, go to the Tools -> Schedules screen and create a new schedule.

• More...

QoS Engine

The QoS Engine option helps improve your network gaming performance by prioritizing applications. By default the QoS Engine settings are disabled and application priority is not classified automatically.

Enable QoS Engine: This option is disabled by default. Enable this option for better performance and experience with online games and other interactive applications, such as VoIP.

Automatic Uplink Speed: This option is enabled by default when the QoS Engine option is enabled. This option will allow your router to automatically determine the uplink speed of your Internet connection.

Measured Uplink Speed: This displays the detected uplink speed.

Manual Uplink Speed: The speed at which data can be transferred from the router to your ISP. This is determined by your ISP. ISPs often state speed as a download/upload pair (eg: 1.5Mbps/284Kbits). Using this example, you would enter 284. Alternatively you can test your uplink speed using an online speed testing website or service.

QoS Engine Rules: A QoS Engine Rule identifies a specific message flow and assigns a priority to that flow. For most applications, automatic classification will be adequate, and specific QoS Engine Rules will not be required.

The QoS Engine supports overlaps between rules, where more than one rule can match for a specific message flow. If more than one rule is found to match, the rule with the highest priority will be used.

Name: Create a name for the rule that is meaningful to you.

Priority: The priority of the message flow is entered here -- 1 receives the highest priority (most urgent) and 255 receives the lowest priority (least urgent).

Protocol: The protocol used by the messages.

The screenshot shows the D-Link DIR-860L configuration interface. The 'QoS Settings' section is active, showing the following configuration:

- Enable QoS:**
- Uplink Speed:** 2048 kbps (Transmission Rate: Select)
- Downlink Speed:** 8192 kbps (Transmission Rate: Select)
- Queue Type:** Strict Priority Queue, Weighted Fair Queue

Below the settings is a table of Queue ID and Queue Weight:

Queue ID	Queue Weight
1	40 %
2	30 %
3	20 %
4	10 %

The 'CLASSIFICATION RULES' section shows 18 rules. The first five rules are visible:

Name	Queue ID	Protocol
Youtube	1 - Highest	TCP
Google_talk	1 - Highest	TCP
Web_audio	1 - Highest	TCP
Web_video	2 - Higher	TCP
Web_download	4 - Best Effort	TCP

Local IP Range: The rule applies to a flow of messages whose LAN-side IP address falls within the range set here.

Local Port Range: The rule applies to a flow of messages whose LAN-side port number is within the range set here.

Remote IP Range: The rule applies to a flow of messages whose WAN-side IP address falls within the range set here.

Remote Port Range: The rule applies to a flow of messages whose WAN-side port number is within the range set here.

Access Control

The Access Control section allows you to control access in and out of your network. Use this feature as a parental control to only grant access to approved sites, limit web access based on time or date, and/or block access from applications like P2P utilities or games.

Add Policy: Click the **Add Policy** button to start the Access Control Wizard.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration options, with 'ACCESS CONTROL' selected. The main content area is titled 'ACCESS CONTROL' and contains the following text: 'The Access Control option allows you to control access in and out of your network. Use this feature as Access Controls to only grant access to approved sites, limit web access based on time or dates, and/or block internet access for applications like P2P utilities or games.' Below this text are 'Save Settings' and 'Don't Save Settings' buttons. A section titled 'ACCESS CONTROL' shows 'Enable Access Control' with a checked checkbox and an 'Add Policy' button. Below that is a 'POLICY TABLE' with columns for Enable, Policy, Machine, Filtering, Logged, and Schedule. At the bottom of the table are 'Save Settings' and 'Don't Save Settings' buttons. On the right side, there is a 'Helpful Hints...' section with three bullet points: 'Check Enable Access Control if you want to enforce rules that limit Internet access from specific LAN computers.', 'Click Add Policy to start the processes of creating a rule. You can cancel the process at any time. When you are finished creating a rule it will be added to the Policy Table below.', and 'Click the Edit icon to modify an existing rule using the Policy Wizard.' A fourth bullet point 'Click the Delete icon to permanently remove a rule.' is partially visible, followed by a 'More...' link.

Access Control Wizard

Click **Next** to continue with the wizard.

The screenshot shows the 'ADD NEW POLICY' wizard screen. The title bar reads 'ADD NEW POLICY'. The main text says: 'This wizard will guide you through the following steps to add a new policy for Access Control.' Below this, there are six numbered steps: 'Step 1 - Choose a unique name for your policy', 'Step 2 - Select a schedule', 'Step 3 - Select the machine to which this policy applies', 'Step 4 - Select filtering method', 'Step 5 - Select filters', and 'Step 6 - Configure Web Access Logging'. At the bottom of the screen are four buttons: 'Prev', 'Next', 'Save', and 'Cancel'.

Enter a name for the policy and then click **Next** to continue.

STEP 1: CHOOSE POLICY NAME

Choose a unique name for your policy.

Policy Name :

Select a schedule (eg: Always) from the drop-down menu and then click **Next** to continue.

STEP 2: SELECT SCHEDULE

Choose a schedule to apply to this policy.

Details :

Enter the following information and then click **Next** to continue.

- **Address Type** - Select IP address, MAC address, or Other Machines.
- **IP Address** - Enter the IP address of the computer you want to apply the rule to.
- **Machine Address** - Enter the PC MAC address (i.e. 00:00.00.00.00).

STEP 3: SELECT MACHINE

Select the machine to which this policy applies.

Specify a machine with its IP or MAC address, or select "Other Machines" for machines that do not have a policy.

Address Type : IP MAC Other Machines

IP Address : <<

Machine Address : <<

Machine		
192.168.0.112		

Select the filtering method and then click **Next** to continue.

STEP 4: SELECT FILTERING METHOD

Select the method for filtering.

Method : Log Web Access Only Block All Access Block Some Access

Apply Web Filter :

Apply Advanced Port Filters :

Enter the rule:

Enable - Check to enable the rule.

Name - Enter a name for your rule.

Dest IP Start - Enter the starting IP address.

Dest IP End - Enter the ending IP address.

Protocol - Select the protocol.

Dest Port Start - Enter the starting port number.

Dest Port End - Enter the ending port number.

STEP 5: PORT FILTER

Add Port Filters Rules.

Specify rules to prohibit access to specific IP addresses and ports.

Enable	Name	Dest IP Start	Dest IP End	Protocol	Dest Port Start	Dest Port End
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535

Prev Next Save Cancel

To enable web logging, click **Enable**.

Click **Save** to save the access control rule.

STEP 6: CONFIGURE WEB ACCESS LOGGING

Web Access Logging : Disabled
 Enable

Prev Next Save Cancel

Your newly created policy will now show up under **Policy Table**.

ACCESS CONTROL

The Access Control option allows you to control access in and out of your network. Use this feature as Access Controls to only grant access to approved sites, limit web access based on time or dates, and/or block internet access for applications like P2P utilities or games.

Save Settings Don't Save Settings Reboot Now

ENABLE

Enable Access Control :

Add Policy

POLICY TABLE

Enable	Policy	Machine	Filtering	Logged	Schedule		
<input checked="" type="checkbox"/>	dlink	192.168.0.106	Block Some Access	No	Always		

Website Filters

Website Filters are used to allow you to set up a list of Web sites that can be viewed by multiple users through the network. To use this feature, select **Allow** or **Deny**, enter the domain or website and click **Save Settings**. You must also select **Apply Web Filter** under the *Access Control* section.

Configure Website Filter: Select either **DENY** computers access to **ONLY** these sites or **ALLOW** computers access to **ONLY** these sites.

Website URL/ Domain: Enter the keywords or URLs that you want to allow or block. Click **Save Settings**.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'D-Link', 'DIR-860L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration sections, with 'WEBSITE FILTER' selected. The main content area is titled 'WEBSITE FILTER' and contains the following text: 'The Website Filter option allows you to set up a list of Web sites you would like to allow or deny through your network. To use this feature, you must also select the "Apply Web Filter" checkbox in the Access Control section.' Below this text are 'Save Settings' and 'Don't Save Settings' buttons. The section is titled '40 -- WEBSITE FILTERING RULES' and includes a 'Configure Website Filter below:' section with a dropdown menu set to 'ALLOW computers access to ONLY these sites' and a 'Clear the list below...' button. A table with two columns, 'Website URL/Domain', is provided for entering filter rules. At the bottom of the table are 'Save Settings' and 'Don't Save Settings' buttons. On the right side, there is a 'Helpful Hints...' section with the following text: 'Create a list of Websites that you would like the devices on your network to be allowed or denied access to. Keywords can be entered in this list in order to block any URL containing the keyword entered. Use with Advanced -> Access Control. More...'

Inbound Filter

The Inbound Filter option is an advanced method of controlling data received from the Internet. With this feature you can configure inbound data filtering rules that control data based on an IP address range. Inbound Filters can be used with Virtual Server, Port Forwarding, or Remote Administration features.

Name: Enter a name for the inbound filter rule.

Action: Select **Allow** or **Deny**.

Enable: Check to enable rule.

Remote IP Start: Enter the starting IP address. Enter 0.0.0.0 if you do not want to specify an IP range.

Remote IP End: Enter the ending IP address. Enter 255.255.255.255 if you do not want to specify and IP range.

Add: Click the **Add** button to apply your settings. You must click **Save Settings** at the top to save the settings.

Inbound Filter Rules List: This section will list any rules that are created. You may click the **Edit** icon to change the settings or enable/disable the rule, or click the **Delete** icon to remove the rule.

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

INBOUND FILTER

The Inbound Filter option is an advanced method of controlling data received from the Internet. With this feature you can configure inbound data filtering rules that control data based on an IP address range.

Inbound Filters can be used for limiting access to a server on your network to a system or group of systems. Filter rules can be used with Virtual Server, Port Forwarding, or Remote Administration features.

ADD INBOUND FILTER RULE

Name :

Action : **Allow**

Remote IP Range	Enable	Remote IP Start	Remote IP End
<input type="checkbox"/> 0.0.0.0	<input type="checkbox"/>	255.255.255.255	255.255.255.255
<input type="checkbox"/> 0.0.0.0	<input type="checkbox"/>	255.255.255.255	255.255.255.255
<input type="checkbox"/> 0.0.0.0	<input type="checkbox"/>	255.255.255.255	255.255.255.255
<input type="checkbox"/> 0.0.0.0	<input type="checkbox"/>	255.255.255.255	255.255.255.255
<input type="checkbox"/> 0.0.0.0	<input type="checkbox"/>	255.255.255.255	255.255.255.255
<input type="checkbox"/> 0.0.0.0	<input type="checkbox"/>	255.255.255.255	255.255.255.255

INBOUND FILTER RULES LIST

Name	Action	Remote IP Range

Helpful Hints...

- Give each rule a Name that is meaningful to you.
- Each rule can either **Allow** or **Deny** access from the WAN.
- Up to eight ranges of WAN IP addresses can be controlled by each rule. The checkbox by each IP range can be used to disable ranges already defined.
- The starting and ending IP addresses are WAN-side address.
- Click the **Add** button to store a finished rule in the Rules List below.
- Click the **Edit** icon in the Rules List to change a rule.
- Click the **Delete** icon in the Rules List to permanently remove a rule.
- **More...**

WIRELESS

Firewall Settings

A firewall protects your network from the outside world. The DIR-860L offers a firewall type functionality. The SPI feature helps prevent cyber attacks. Sometimes you may want a computer exposed to the outside world for certain types of applications. If you choose to expose a computer, you can enable Demilitarized Zone (DMZ). This option will expose the chosen computer completely to the outside world.

Enable SPI: SPI (Stateful Packet Inspection, also known as dynamic packet filtering) helps to prevent cyber attacks by tracking the state of each session. It validates that the traffic passing through the session conforms to the protocol.

Anti-Spoof Check: Enable this feature to protect your network from certain kinds of “spoofing” attacks.

Enable DMZ: If an application has trouble working from behind the router, you can expose one computer to the Internet and run the application on that computer.

Note: *Placing a computer in the DMZ may expose that computer to a variety of security risks. Use of this option is only recommended as a last resort.*

DMZ IP Address: Specify the IP address of the computer on the LAN that you want to have unrestricted Internet communication. If this computer obtains its IP address automatically using DHCP, be sure to make a static reservation on the **Setup > Network Settings** page so that the IP address of the DMZ machine does not change.

PPTP: Allows multiple machines on the LAN to connect to their corporate network using PPTP protocol.

IPSEC (VPN): Allows multiple VPN clients to connect to their corporate network using IPsec. Some VPN clients support traversal of IPsec through NAT. This Application-level Gateway (ALG) may interfere with the operation of such VPN clients. If you are having trouble connecting with your corporate network, try turning this ALG off. Please check with the system administrator of your corporate network whether your VPN client supports NAT traversal.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'D-Link', 'DIR-860L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration sections, with 'FIREWALL SETTINGS' selected. The main content area is titled 'FIREWALL & DMZ SETTINGS' and contains the following sections:

- FIREWALL & DMZ SETTINGS:** A brief explanation of DMZ and buttons for 'Save Settings' and 'Don't Save Settings'.
- FIREWALL SETTINGS:** A checkbox for 'Enable SPI'.
- ANTI-SPOOF CHECKING:** A checkbox for 'Enable anti-spoof checking'.
- DMZ HOST:** A checkbox for 'Enable DMZ', a text input for 'DMZ IP Address', and a dropdown for 'Computer Name'. A note below explains the DMZ option and its risks.
- APPLICATION LEVEL GATEWAY (ALG) CONFIGURATION:** Checkboxes for 'PPTP', 'IPSec (VPN)', 'RTSP', and 'SIP', all of which are currently checked. Buttons for 'Save Settings' and 'Don't Save Settings' are at the bottom.

On the right side, there is a 'Helpful Hints...' section with a note about DMZ: 'DMZ: Only enable the DMZ option as a last resort. If you are having trouble using an application from a computer behind the router, first try opening ports associated with the application in the Advanced Port Forwarding section.' A 'More...' link is also present.

RTSP: Allows applications that use Real Time Streaming Protocol to receive streaming media from the Internet. QuickTime and Real Player are some of the common applications using this protocol.

SIP: Allows devices and applications using VoIP (Voice over IP) to communicate across NAT. Some VoIP applications and devices have the ability to discover NAT devices and work around them. This ALG may interfere with the operation of such devices. If you are having trouble making VoIP calls, try turning this ALG off.

Routing

The Routing option is an advanced method of customizing specific routes of data through your network.

Name: Enter a name for your route.

Destination IP: Enter the IP address of packets that will take this route.

Netmask: Enter the netmask of the route, please note that the octets must match your destination IP address.

Gateway: Enter your next hop gateway to be taken if this route is used.

Metric: The route metric is a value from 1 to 16 that indicates the cost of using this route. A value 1 is the lowest cost and 15 is the highest cost.

Interface: Select the interface that the IP packet must use to transit out of the router when this route is used.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'D-Link' and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration options, with 'ROUTING' selected. The main content area is titled 'ROUTING' and contains the following text: 'The Routing option allows you to define static routes to specific destinations.' Below this text are two buttons: 'Save Settings' and 'Don't Save Settings'. A section titled '32 -- ROUTE LIST' shows a table with the following columns: 'Name', 'Destination IP', 'Metric', and 'Interface'. The table contains six rows, each with a checkbox, a text input field for 'Name', a text input field for 'Destination IP', a dropdown menu for 'Metric' (set to '1'), and a dropdown menu for 'Interface' (set to 'WAN ()'). The right sidebar, titled 'Helpful Hints...', contains several bullet points explaining the 'Enable', 'Interface', 'Destination IP', 'Netmask', and 'Gateway' fields.

Advanced Wireless

This page allows you to change some of the advanced wireless settings of the DIR-860L. It is recommended that you only change these settings if you are familiar with their functions and proper settings, or are instructed to do so.

Wireless Band This section will allow you to adjust the settings for the **2.4GHz band**

Transmit Power: Set the transmission power of the antennas for the 2.4 GHz band.

WLAN Partition: This enables 802.11d operation. 802.11d is a wireless specification developed to allow implementation of wireless networks in countries that cannot use the 802.11 standard. This feature should only be enabled if you are in a country that requires it.

WMM Enable: WMM is QoS for your wireless network. This will improve the quality of video and voice applications for your wireless clients.

HT20/40 Coexistence: Enable this option to reduce interference from other wireless networks in your area. If the channel width is operating at 40MHz and there is another wireless network's channel over-lapping and causing interference, the router will automatically change to 20MHz.

Wireless Band: This section will allow you to adjust the settings for the **5 GHz band**.

Transmit Power: Set the transmission power of the antennas for the 5 GHz band.

WLAN Partition: This enables 802.11d operation. 802.11d is a wireless specification developed to allow implementation of wireless networks in countries that cannot use the 802.11 standard. This feature should only be enabled if you are in a country that requires it.

WMM Enable: WMM is QoS for your wireless network. This will improve the quality of video and voice applications for your wireless clients.

The screenshot displays the D-Link DIR-860L web interface. The top navigation bar includes 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The 'ADVANCED' tab is selected, showing a sidebar with various configuration categories like 'VIRTUAL SERVER', 'PORT FORWARDING', 'APPLICATION RULES', 'QOS ENGINE', 'NETWORK FILTER', 'ACCESS CONTROL', 'WEBSITE FILTER', 'INBOUND FILTER', 'FIREWALL SETTINGS', 'ROUTING', 'ADVANCED WIRELESS', 'WIFI PROTECTED SETUP', 'ADVANCED NETWORK', 'GUEST ZONE', 'IPV6 FIREWALL', and 'IPV6 ROUTING'. The 'ADVANCED WIRELESS' section is expanded, showing two sub-sections: '2.4GHz Band' and '5GHz Band'. The 2.4GHz band settings are: Wireless Band: 2.4GHz Band, Transmit Power: High, WLAN Partition: [], WMM Enable: [x], and HT 20/40 Coexistence: [x] Enable. The 5GHz band settings are: Wireless Band: 5GHz Band, Transmit Power: High, WLAN Partition: [], and WMM Enable: [x]. A 'Helpful Hints...' sidebar on the right provides additional information, including a note that enabling WMM can help control latency and jitter when transmitting multimedia content over a wireless connection, and a 'More...' link.

Wi-Fi Protected Setup

Wi-Fi Protected Setup (WPS) is a simplified method for securing your wireless network during the “Initial setup” as well as the “Add New Device” processes. The Wi-Fi Alliance (WFA) has certified WPS across many different products and manufacturers. The process is as simple as pressing a button for the Push-Button Method or correctly entering an 8-digit code for the PIN Code Method. The time reduction in setup and ease of use are significant, and the highest wireless security setting of WPA2 is automatically used.

Enable: Enable the Wi-Fi Protected Setup feature.

Note: if this option is unchecked, the WPS button on the side of the router will be disabled.

Lock WPS-PIN Setup: Check to disable the option of configuring the WPS PIN options.

PIN Settings: A PIN is a unique number that can be used to add the router to an existing network or to create a new network. Only the Administrator (“admin” account) can change or reset the PIN.

Current PIN: Shows the current PIN.

Generate New PIN: Create a random number that is a valid PIN. This becomes the router’s PIN. You can then use this pin to access your wireless network.

Reset PIN to Default: Restore the default PIN of the router.

The screenshot shows the D-Link DIR-860L web interface. The main content area is titled "WI-FI PROTECTED SETUP". It contains the following sections:

- WI-FI PROTECTED SETUP:**
 - Wi-Fi Protected Setup is used to easily add devices to a network using a PIN or button press. Devices must support Wi-Fi Protected Setup in order to be configured by this method.
 - If the PIN changes, the new PIN will be used in following Wi-Fi Protected Setup process. Clicking on "Don't Save Settings" button will not reset the PIN.
 - However, if the new PIN is not saved, it will get lost when the device reboots or loses power.
 - Buttons: Save Settings, Don't Save Settings
- WI-FI PROTECTED SETUP (Configuration):**
 - Enable:
 - Wi-Fi Protected Setup: Enable/Not Configured
 - Lock WPS-PIN Setup:
- PIN SETTINGS:**
 - PIN: [Field]
 - Buttons: Reset PIN to Default, Generate New PIN
- ADD WIRELESS STATION:**
 - Button: Connect your Wireless Device
 - Buttons: Save Settings, Don't Save Settings

The sidebar on the right contains "Helpful Hints...":

- Enable if other wireless devices you wish to include in the local network support Wi-Fi Protected Setup.
- Only "Admin" account can change security settings.
- Lock WPS-PIN Setup Locking the WPS-PIN Method prevents the settings from being changed by any new external registrar using its PIN. Devices can still be added to the wireless network using Wi-Fi Protected Setup Push Button Configuration (WPS-PIN).
- Click Connect your Wireless Device to use Wi-Fi Protected Setup to add wireless devices to the wireless network.
- More...

Add Wireless Station: This Wizard helps you add wireless devices to the wireless network.

The wizard will either display the wireless network settings to guide you through manual configuration, prompt you to enter the PIN for the device, or ask you to press the configuration button on the device. If the device supports Wi-Fi Protected Setup and has a configuration button, you can add it to the network by pressing the configuration button on the device and then the WPS button on the router within 120 seconds. The status LED on the router will flash three times if a device has been successfully added to the network.

There are several ways to add a wireless device to your network. A “registrar” controls access to the wireless network. A registrar only allows devices onto the wireless network if you have entered the correct PIN, or pressed a special WPS button on the device. The router acts as a registrar for the network, although other devices may act as a registrar as well.

Click to start the wizard, and refer to page 39 for further instructions.

WPS Button

You can also simply press the WPS button on the side of the router, and then press the WPS button on your wireless client within 120 seconds to automatically connect without logging into the router.

Refer to page 107 for more information.



Advanced Network

This page allows you to change some of the advanced network settings of the DIR-860L. It is recommended that you only change these settings if you are familiar with their functions and proper settings, or are instructed to do so.

Enable UPnP: To use the Universal Plug and Play (UPnP™) feature click on **Enabled**. UPnP provides plug and play functionality with compatible networking equipment, software and peripherals.

WAN Ping: Checking the box will allow the DIR-860L to respond to pings. Unchecking the box may provide some extra security from hackers.

WAN Ping Inbound Filter: Select from the drop-down menu if you would like to apply the Inbound Filter to the WAN ping. Refer to the Inbound Filters section for more information.

WAN Port Speed: You may set the port speed of the Internet/WAN port to 10Mbps, 100Mbps, 1000Mbps, or Auto (recommended).

Enable IPv4 Multicast Streams: Check the box to allow multicast traffic to pass through the router from the Internet (IPv4).

Enable IPv6 Multicast Streams: Check the box to allow multicast traffic to pass through the router from the Internet (IPv6).

The screenshot displays the 'Advanced Network Settings' page for a D-Link DIR-860L router. The page is organized into several sections:

- ADVANCED NETWORK SETTINGS:** A warning message states, "These options are for users that wish to change the LAN settings. We do not recommend changing these settings from factory default. Changing these settings may affect the behavior of your network." Below this are 'Save Settings' and 'Don't Save Settings' buttons.
- UPNP:** The 'Enable UPnP IGD' checkbox is checked.
- WAN PING:** The 'Enable WAN Ping Response' checkbox is checked. A note below states: "If you enable this feature, the WAN port of your router will respond to ping requests from the Internet that are sent to the WAN IP Address."
- WAN PORT SPEED:** The 'WAN Port Speed' dropdown menu is set to 'Auto 10/100/1000Mbps'.
- IPV4 MULTICAST STREAMS:** The 'Enable IPv4 Multicast Streams' checkbox is unchecked.
- IPV6 MULTICAST STREAMS:** The 'Enable IPv6 Multicast Streams' checkbox is unchecked.
- Helpful Hints...:** A sidebar on the right contains several tips:
 - UPnP helps other UPnP LAN hosts interoperate with the router. Leave the UPnP option enabled as long as the LAN has other UPnP applications.
 - For added security, it is recommended that you disable the WAN Ping Response option. Ping is often used by malicious Internet users to locate active networks or PCs.
 - The WAN speed is usually detected automatically. If you are having problems connecting to the WAN, try selecting the speed manually.
 - If you are having trouble receiving video on demand type of service from the Internet, make sure the Multicast Stream option is enabled.
 - More...

Guest Zone

The Guest Zone feature will allow you to create temporary zones that can be used by guests to access the Internet. These zones will be separate from your main wireless network. You may configure different zones for the 2.4GHz and 5GHz wireless bands.

Enable Routing Between Zones: Check to allow network connectivity between the different zones created.

Enable Guest Zone: Check to enable the Guest Zone feature for the 2.4 GHz band.

Schedule: The timeframe when the Guest Zone will be active. The schedule may be set to **Always**, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section or click **Add New**.

Wireless Network Name: Enter a wireless network name (SSID) that is different from that of your main wireless network.

Security Mode: If you want to choose a security mode for the 2.4 GHz band, choose from the drop-down menu.

Enable Guest Zone: Check to enable the Guest Zone feature for the 5 GHz band.

Schedule: The timeframe when the Guest Zone will be active. The schedule may be set to **Always**, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section or click **Add New**.

Wireless Network Name: Enter a wireless network name (SSID) that is different from that of your main wireless network and 2.4 GHz band guest zone (if enabled).

Security Mode: If you want to choose a security mode for the 5 GHz band, choose from the drop-down menu.

The screenshot shows the D-Link DIR-860L web interface. The main navigation menu includes: SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration options: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES, QOS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER, INBOUND FILTER, FIREWALL SETTINGS, ROUTING, ADVANCED WIRELESS, WIRELESS PROTECTED SETUP, ADVANCED NETWORK, GUEST ZONE, IPV6 FIREWALL, and IPV6 ROUTING. The main content area is titled 'GUEST ZONE' and contains the following configuration options:

- Enable Guest Zone:** Always
- Wireless Band:** 2.4GHz Band
- Wireless Network Name:** dlink-guest (Also called the SSID)
- Security Mode:** None

Below this, there is a section for 'SESSION 5GHZ' with similar configuration options:

- Enable Guest Zone:** Always
- Wireless Band:** 5GHz Band
- Wireless Network Name:** dlink-5GHz-guest (Also called the SSID)
- Security Mode:** None

At the bottom of the page, there are 'Save Settings' and 'Don't Save Settings' buttons. A 'Helpful Hints...' sidebar on the right provides additional information about the Guest Zone feature.

IPv6 Firewall

The DIR-860L's IPv6 Firewall feature allows you to configure which kind of IPv6 traffic is allowed to pass through the device. The DIR-860L's IPv6 Firewall functions in a similar way to the IP Filters feature.

Enable IPv6 Simple Security: Check the box to enable the IPv6 firewall simple security.

Configure IPv6 Firewall: Select an action from the drop-down menu.

Name: Enter a name to identify the IPv6 firewall rule.

Schedule: Use the drop-down menu to select the time schedule that the IPv6 Firewall Rule will be enabled on. The schedule may be set to **Always**, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section.

Source: Use the **Source** drop-down menu to specify the interface that connects to the source IPv6 addresses of the firewall rule.

IP Address Range: Enter the source IPv6 address range in the adjacent **IP Address Range** field.

Destination: Use the **Destination** drop-down menu to specify the interface that connects to the destination IP addresses of the firewall rule.

Protocol: Select the protocol of the firewall port (**All**, **TCP**, **UDP**, or **ICMP**).

Port Range: Enter the first port of the range that will be used for the firewall rule in the first box and enter the last port in the field in the second box.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'DIR-860L', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration sections, with 'IPv6 FIREWALL' selected. The main content area is titled 'IPv6 FIREWALL' and contains the following sections:

- IPv6 FIREWALL:** A description stating it's an advanced feature for allowing or denying traffic. It includes 'Save Settings' and 'Don't Save Settings' buttons.
- IPv6 SIMPLE SECURITY:** A section with the text 'Enable IPv6 Simple Security : .
- 20 -- IPv6 FIREWALL RULES:** A section showing the remaining number of rules (20) and a configuration prompt: 'Configure IPv6 Filtering below: Turn IPv6 Filtering ON and ALLOW rules listed'. Below this is a table for defining rules.

The table for IPv6 Firewall Rules has the following structure:

Name	Schedule	Source Interface	IP Address Range	Protocol	Port Range
<input type="text"/>	Always	<input type="text"/>	<input type="text"/>	ALL	<input type="text"/> - <input type="text"/>
<input type="checkbox"/>		<input type="text"/>	<input type="text"/>	ALL	<input type="text"/> - <input type="text"/>
<input type="text"/>	Always	<input type="text"/>	<input type="text"/>	ALL	<input type="text"/> - <input type="text"/>
<input type="checkbox"/>		<input type="text"/>	<input type="text"/>	ALL	<input type="text"/> - <input type="text"/>

Helpful Hints... (visible on the right side of the interface):

- For each rule you can create a name and control the direction of traffic. You can also allow or deny a range of IP Addresses, the protocol and a port range.
- In order to apply a schedule to a Firewall rule, you must first define a schedule on the [Tools -> Schedules](#) page.
- [More...](#)

IPv6 Routing

This page allows you to specify custom routes that determine how data is moved around your network.

Route List: Check the box next to the route you wish to enable.

Name: Enter a specific name to identify this route.

Destination IP/ Prefix Length: This is the IP address of the router used to reach the specified destination. You can also enter the IPv6 address prefix length of the packets that will take this route.

Metric: The route metric is a value from 1 to 16 that indicates the cost of using this route. A value of 1 is the lowest cost and 15 is the highest cost.

Interface: Use the drop-down menu to specify if the IP packet must use the WAN or LAN interface to transit out of the Router.

Gateway: Enter the next hop that will be taken if this route is used.

D-Link

DIR-860L

SETUP ADVANCED TOOLS STATUS SUPPORT

ROUTING

This Routing page allows you to specify custom routes that determine how data is moved around your network.

Save Settings Don't Save Settings

10 -- ROUTE LIST

<input type="checkbox"/>	Name	Destination IPv6 / Prefix Length	Metric	Interface	Gateway
<input type="checkbox"/>		64 /		NULL	
<input type="checkbox"/>		64 /		NULL	
<input type="checkbox"/>		64 /		NULL	
<input type="checkbox"/>		64 /		NULL	
<input type="checkbox"/>		64 /		NULL	
<input type="checkbox"/>		64 /		NULL	
<input type="checkbox"/>		64 /		NULL	

Helpful Hints...

- Each route has a check box next to it, check this box if you want the route to be enabled.
- The name field allows you to specify a name for identification of this route, e.g. "Network 2"
- The destination IPv6 address is the address of the host or network you wish to reach.
- The prefix length field identifies the portion of the destination IP in use.
- The gateway IP address is the IP address of the router, if any, used to reach the specified destination.
- More...

Tools Admin

This page will allow you to change the Administrator password. You can also enable Remote Management. Admin has full read/write access to the router's settings.

Admin Password: Here you can enter a new password for the Administrator Login Name. The administrator can make changes to the settings. Enter the new password twice for verification.

Gateway Name: Enter a name for your router.

Enable Graphical Authentication: Enables a CAPTCHA challenge-response test, which requires users to type letters or numbers from a distorted image displayed on the screen. This prevents unauthorized users from using automated methods to gain access your wireless network.

Enable HTTPS Server: Check to enable HTTPS to connect to the router securely. This means to connect to the router, you must enter **https://dlinkrouter.local.** or **https://192.168.0.1** (for example) instead of **http://dlinkrouter.local.** or **http://192.168.0.1.**

Enable Remote Management: Remote management allows the DIR-860L to be configured from the Internet by a web browser. A username/password is still required to access the Web Management interface.

Remote Admin Port: The port number used to access the DIR-860L is used in the URL. For example: **http://x.x.x.x:8080** where x.x.x.x is the Internet IP address of the DIR-860L and 8080 is the port used for the Web Management interface. If you have enabled **HTTPS Server**, you must enter **https://** as part of the URL to access the router remotely.

Remote Admin Inbound Filter: This section will list any rules that are created. You may click the **Edit** icon to change the settings or enable/disable the rule, or click the **Delete** icon to remove the rule. **Details** will display the current status of the rule.

The screenshot shows the D-Link DIR-860L Web Management interface, specifically the Tools Admin page. The page is divided into several sections:

- ADMINISTRATOR SETTINGS:** Contains a message about the 'admin' account and a 'Save Settings' button.
- ADMIN PASSWORD:** Contains a message asking for the same password in two boxes for confirmation, with 'Password' and 'Verify Password' input fields, and a 'Save Settings' button.
- SYSTEM NAME:** Contains a 'Gateway Name' field with the value 'DIR-860' and a 'Save Settings' button.
- ADMINISTRATION:** Contains several settings:
 - Enable Graphical Authentication:**
 - Enable HTTPS Server:**
 - Enable Remote Management:**
 - Remote Admin Port:** 8080, with a 'Use HTTPS:' checkbox.
 - Remote Admin Inbound Filter:** A dropdown menu set to 'Allow All'.
 - Details:** A text input field set to 'Allow All'.

On the right side, there is a 'Helpful Hints...' section with several bullet points providing security and configuration advice. At the bottom of the page, there is a 'WIRELESS' section.

Time

The Time Configuration option allows you to configure, update, and maintain the correct time on the internal system clock. From this section you can set the time zone that you are in and set the Time Server. Daylight Saving can also be configured to automatically adjust the time when needed.

Time: Displays the current date and time of the router.

Time Zone: Select your Time Zone from the drop-down menu.

Enable Daylight Saving: To select Daylight Saving time manually, select enabled or disabled, and enter a start date and an end date for daylight saving time.

Enable NTP Server: NTP is short for Network Time Protocol. An NTP server will synchronize the time and date with your router. This will only connect to a server on the Internet, not a local server. Check the box to enable this feature.

NTP Server Used: Enter the IP address of an NTP server or select one from the drop-down menu.

Manual: To manually input the time, enter the values in these fields for the Year, Month, Day, Hour, Minute, and Second and then click **Set Time**.

You can also click **Sync Your Computer's Time Settings** to sync the date and time with that of the computer you are currently using.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'D-Link', 'DIR-860L //', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration options: ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'TIME AND DATE' and contains the following sections:

- TIME AND DATE CONFIGURATION:**
 - Time: 2000/01/01 00:35:29
 - Time Zone: (GMT+08:00) Taipei
 - Enable Daylight Saving:
 - Daylight Saving Offset: +01:00
 - Daylight Saving Dates:

	Month	Week	Day of Week	Time
DST Start	Jan	1st	Sun	12:00 AM
DST End	Jan	1st	Sun	12:00 AM
- AUTOMATIC TIME AND DATE CONFIGURATION:**
 - Automatically synchronize with D-Link's Internet time server
 - NTP Server Used: ntp1.dlink.com | Update Now
- SET THE TIME AND DATE MANUALLY:**
 - Year: 2009 | Month: Jan | Day: 1
 - Hour: 0 | Minute: 35 | Second: 29
 - Sync, your computer's time settings

Buttons for 'Save Settings' and 'Don't Save Settings' are present at the bottom of each configuration section. A 'Helpful Hints...' sidebar on the right provides additional information about the 'Sync Your Computers Time Settings' button.

SysLog

The Broadband Router keeps a running log of events and activities occurring on the Router. You may send these logs to a SysLog server on your network.

Enable Logging to SysLog Server: Check this box to send the router logs to a SysLog Server.

The screenshot displays the D-Link DIR-860L web interface. The top navigation bar includes 'D-Link', 'DIR-860L //', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists menu items: ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'SYSLOG' and contains the following text: 'The SysLog options allow you to send log information to a SysLog Server.' Below this are 'Save Settings' and 'Don't Save Settings' buttons. The 'SYSLOG SETTINGS' section includes a checked checkbox for 'Enable Logging To SysLog : Server', a text input field for 'Syslog Server IP Address', and a dropdown menu for 'Computer Name' with '<<' and '>>' navigation buttons. At the bottom of this section are 'Save Settings' and 'Don't Save Settings' buttons. On the right side, a 'Helpful Hints...' section provides information: 'A System Logger (syslog) is a server that collects in one place the logs from different sources. If the LAN includes a syslog server, you can use this option to send the router's logs to that server.' and a 'More...' link. The footer of the interface reads 'WIRELESS'.

Email Settings

The Email feature can be used to send the system log files, router alert messages, and firmware update notifications to an email address.

Enable Email Notification: When this option is enabled, router activity logs are emailed to a designated email address.

From Email Address: This email address will appear as the sender when you receive a log file or firmware upgrade notification via email.

To Email Address: Enter the email address where you want the email to be sent.

SMTP Server Address: Enter the SMTP server address for sending email.

SMTP Server Port: Enter the SMTP port used on the server.

Enable Authentication: Check this box if your SMTP server requires authentication.

Account Name: Enter your account for sending email.

Password: Enter the password associated with the account. Re-type the password associated with the account.

On Log Full: When this option is selected, logs will be sent via email to your account when the log is full.

On Schedule: Selecting this option will send the logs via email according to schedule.

Schedule: This option is enabled when **On Schedule** is selected. You can select a schedule from the list of defined schedules. To create a schedule, go to **Tools > Schedules**.

Details: Here you can choose from a drop down menu whether email details are kept in the log or not.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration categories: ADMIN, TIME, SYSLOG, EMAIL SETTINGS (selected), SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'EMAIL SETTINGS' and contains the following sections:

- EMAIL NOTIFICATION:** A checkbox for 'Enable Email Notification'.
- EMAIL SETTINGS:** Fields for 'From Email Address', 'To Email Address', 'Email Subject', 'SMTP Server Address', 'SMTP Server Port' (set to 25), 'Enable Authentication' (checkbox), 'Account Name', 'Password', and 'Verify Password'. A 'Send Mail Now' button is also present.
- EMAIL LOG WHEN FULL OR ON SCHEDULE:** Checkboxes for 'On Log Full' and 'On Schedule', a 'Schedule' dropdown menu (set to 'Never'), and a 'Detail' text input field.

At the bottom of the page, there is a 'WIRELESS' section and a copyright notice: 'Copyright © 2013 D-Link Corporation. All rights reserved.'

System

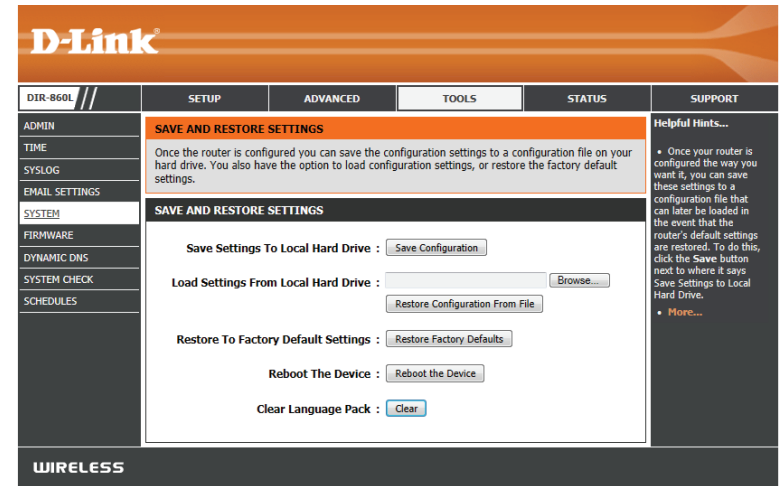
This section allows you to manage the router's configuration settings, reboot the router, and restore the router to the factory default settings. Restoring the unit to the factory default settings will erase all settings, including any rules that you've created.

Save Settings to Local Hard Drive: Use this option to save the current router configuration settings to a file on the hard disk of the computer you are using. First, click the **Save Configuration** button. A file dialog will appear, allowing you to select a location and file name for the settings.

Load Settings from Local Hard Drive: Use this option to load previously saved router configuration settings. First, use the **Browse** option to find a previously saved file of configuration settings. Then, click the **Load** button to transfer those settings to the router.

Restore to Factory Default Settings: This option will restore all configuration settings back to the settings that were in effect at the time the router was shipped from the factory. Any settings that have not been saved will be lost, including any rules that you have created. If you want to save the current router configuration settings, use the **Save Configuration** button above.

Reboot the Device: Click to reboot the router.



Firmware

You can upgrade router's firmware using this feature. Make sure the firmware you want to use is on the local hard drive of the computer you are using. Click on **Choose File** to locate the firmware file to be used for the update. Please check the D-Link support website for firmware updates at <http://support.dlink.com>. You can download firmware upgrades to your hard drive from this site.

Firmware Information: This section shows the details of the current firmware version that is installed. Click on the **Check Now** button to check online for new firmware versions.

Firmware Upgrade

You can change update the internal router software by uploading a new firmware version.

Choose File: After you have downloaded the new firmware, click **Choose File** to locate the firmware update on your hard drive.

Upload: Click **Upload** to complete the firmware upgrade.

Language Pack

You can change the language of the web UI by uploading available language packs.

Choose File: After you have downloaded the new language pack, click **Choose File** to locate the language pack file on your hard drive.

Upload: Click **Upload** to complete the language pack upgrade.

The screenshot displays the D-Link web management interface for a DIR-860L router. The top navigation bar includes 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration options, with 'FIRMWARE' selected. The main content area is titled 'FIRMWARE UPDATE' and contains the following sections:

- FIRMWARE UPDATE:** A notice stating that new firmware may be available to improve functionality and performance. It provides instructions to use the 'Browse' button to locate the upgrade file on the local hard drive and the 'Upload' button to start the update. It also mentions that a language pack can be used to change the user interface language.
- FIRMWARE INFORMATION:** Displays the current firmware version (1.00) and time (01/03/2013 18:13:00). It includes a 'Check Online Now for Latest Firmware Version' button.
- FIRMWARE UPGRADE:** A section with a note that some updates reset configuration to factory defaults. It instructs users to ensure a wired connection and provides an 'Upload' button with a 'Browse...' link to select the upgrade file.
- LANGUAGE PACK UPGRADE:** A section for upgrading the web UI language, also featuring an 'Upload' button and a 'Browse...' link.

The footer of the interface includes the 'WIRELESS' section and a copyright notice for 2013 D-Link Corporation.

Dynamic DNS

The DDNS feature allows you to host a server (Web, FTP, Game Server, etc.) using a domain name that you have purchased with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter your domain name to connect to your server no matter what your IP address is.

Enable Dynamic DNS: Dynamic Domain Name System is a method of keeping a domain name linked to a changing IP Address. Check the box to enable DDNS.

Server Address: Select your DDNS provider from the drop-down menu or enter the DDNS server address.

Host Name: Enter the Host Name that you registered with your DDNS service provider.

Username or Key: Enter the Username or key for your DDNS account.

Password or Key: Enter the Password or key for your DDNS account.

Timeout: Enter a timeout time (in hours).

Status: Displays the current connection status.

Enable DDNS for IPv6 Hosts: Check the **Enable** box to enable DDNS for IPv6 Hosts.

IPv6 Address: Select your DDNS provider from the drop-down menu or enter the DDNS server address.

Host Name: Enter the Host Name that you registered with your DDNS service provider.

IPv6 DDNS List: Displays the list of active IPv6 Dynamic DNS addresses.



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DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

DYNAMIC DNS

The Dynamic DNS feature allows you to host a server (Web, FTP, Game Server, etc...) using a domain name that you have purchased (www.whateveryournameis.com) with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter your host name to connect to your game server no matter what your IP address is.
[Sign up for D-Link's Free DDNS service at www.DLinkDDNS.com.](http://www.DLinkDDNS.com)

Helpful Hints...

- To use this feature, you must first have a Dynamic DNS account from one of the providers in the drop down menu.
- We could also use DDNS function for IPv6 with the same account as IPv4.
- More...

DYNAMIC DNS SETTINGS

Enable Dynamic DNS :

Server Address : dlinkddns.com(Free) ▾

Host Name :

Username or Key :

Password or Key :

Verify Password or Key :

Timeout : 567 (hours)

Status : Disconnected

DYNAMIC DNS FOR IPV6 HOSTS

Enable :

IPv6 Address : << Computer Name ▾

Host Name : (e.g.: ipv6.mydomain.net)

IPV6 DYNAMIC DNS LIST

Enable	Host Name	IPv6 Address
<input type="checkbox"/>		

WIRELESS

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System Check

Ping Test: The Ping Test is used to send Ping packets to test if a computer is connected to the Internet. Enter the IP address that you wish to Ping and click **Ping**.

IPv6 Ping Test: Enter the IPv6 address that you wish to Ping and click **Ping**.

Ping Results: The results of your ping attempts will be displayed here.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'DIR-860L //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The 'TOOLS' tab is selected. On the left sidebar, the 'SYSTEM CHECK' option is highlighted. The main content area is divided into three sections: 'PING TEST', 'IPv6 PING TEST', and 'PING RESULT'. Each section has a text input field for 'Host Name or IP Address' and a 'Ping' button. The 'PING TEST' section includes a description: 'Ping Test sends "ping" packets to test a computer on the Internet.' The 'IPv6 PING TEST' section is similar. The 'PING RESULT' section contains the instruction: 'Enter a host name or IP address above and click "Ping"'. On the right side, there is a 'Helpful Hints...' section with a bullet point: '• "Ping" checks whether a computer on the Internet is running and responding. Enter either the IP address of the target computer or enter its fully qualified domain name.' and a 'More...' link. The 'WIRELESS' logo is visible at the bottom left of the interface.

Schedules

Schedules can be created for use with enforcing rules. For example, if you want to restrict web access to Mon-Fri from 3pm to 8pm, you can create a schedule selecting Mon, Tue, Wed, Thu, and Fri and enter a Start Time of 3pm and End Time of 8pm.

Name: Enter a name for your new schedule.

Days: Select a day, a range of days, or All Week to include every day.

All Day - 24 Hrs: Check **All Day - 24hrs** to schedule the entire day.

Time Format: Choose a 24 hour or 12 hour clock-style.

Start Time: Enter a start time for your schedule.

End Time: Enter an end time for your schedule.

Schedule Rules The list of schedules will be listed here. Click the **Edit** icon to **List:** make changes or click the **Delete** icon to remove the schedule.

The screenshot shows the D-Link DIR-860L web interface. The main navigation menu includes ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The SCHEDULES tab is selected, displaying the 'ADD SCHEDULE RULE' form. The form includes the following fields and options:

- Name:** A text input field.
- Day(s):** Radio buttons for 'All Week' and 'Select Day(s)'. Under 'Select Day(s)', there are checkboxes for Sun, Mon, Tue, Wed, Thu, Fri, and Sat.
- All Day - 24 hrs:** A checkbox.
- Time Format:** A dropdown menu set to '12-hour'.
- Start Time:** A time selection field showing 12:00 AM (hour:minute).
- End Time:** A time selection field showing 11:59 PM (hour:minute).
- Buttons:** 'Add' and 'Cancel' buttons.

Below the form is a 'SCHEDULE RULES LIST' table with columns for Name, Day(s), and Time Frame. To the right of the main content area is a 'Helpful Hints...' sidebar with the following text:

- Schedules are used with a number of other features to define when those features are in effect.
- Give each schedule a name that is meaningful to you. For example, a schedule for Monday through Friday from 3:00pm to 9:00pm, might be called "After School".
- Click Add to add a completed schedule to the list below.
- Click Edit icon to change an existing schedule.
- Click Delete icon to permanently delete a schedule.
- More...

Status Device Info

This page displays the current information for the DIR-860L. It will display the LAN, WAN (Internet), and Wireless information. If your Internet connection is set up for a Dynamic IP address, then a **Release** button and a **Renew** button will be displayed. Use **Release** to disconnect from your ISP and use **Renew** to connect to your ISP. If your Internet connection is set up for PPPoE, a **Connect** button and a **Disconnect** button will be displayed. Use **Disconnect** to drop the PPPoE connection and use **Connect** to establish the PPPoE connection.

General: Displays the router's time and firmware version.

WAN: Displays the MAC address and the public IP settings

LAN: Displays the MAC address and the private (local) IP settings for the router.

Wireless LAN1: Displays the 2.4GHz wireless MAC address and your wireless settings such as SSID and Channel.

Wireless LAN2: Displays the 5GHz wireless MAC address and your wireless settings such as SSID and Channel.

LAN Computers: Displays computers and devices that are connected to the router via Ethernet and that are receiving an IP address assigned by the router (DHCP).

IGMP Multicast Memberships: Displays the group address of any IGMP multicasts.

The screenshot displays the D-Link DIR-860L web interface. The main navigation menu includes SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar contains links for DEVICE INFO, LOGS, STATISTICS, INTERNET SESSIONS, WIRELESS, ROUTING, IPV4, and IPV6 ROUTING. The main content area is titled "DEVICE INFORMATION" and contains the following sections:

- GENERAL:** Time: 2000/01/01 00:40:37; Firmware Version: 1.00 Thu 03 Jun 2013; mydlink Service: Non-Registered; mydlink E-mail: [redacted]
- WAN:** Connection Type: DHCP Client; Cable Status: disconnected; Network Status: disconnected; Connection Up Time: 0 Day 0 Hour 0 Min 0 Sec; MAC Address: 00:de:fa:3a:01:00; IP Address: 0.0.0.0; Subnet Mask: 0.0.0.0; Default Gateway: 0.0.0.0; Primary DNS Server: 0.0.0.0; Secondary DNS Server: 0.0.0.0
- LAN:** MAC Address: [redacted]; IP Address: 192.168.0.1; Subnet Mask: 255.255.255.0; DHCP Server: Enabled
- WIRELESS LAN1:** Wireless Radio: Enabled; MAC Address: [redacted]; 802.11 Mode: Mixed 802.11n, 802.11g and 802.11b; Channel Width: 20/40MHz; Channel: 6; Network Name (SSID): dlink; Wi-Fi Protected Setup: Enabled/Unconfigured; Security: Disabled; Guest Zone Wireless Radio: Disabled; Guest Zone Network Name (SSID): dlink-guest; Guest Zone Security: Disabled
- WIRELESS LAN2:** Wireless Radio: Enabled; MAC Address: [redacted]; 802.11 Mode: Mixed 802.11ac; Channel Width: 20/40/80MHz; Channel: 36; Network Name (SSID): dlink-5GHz; Wi-Fi Protected Setup: Enabled/Unconfigured; Security: Disabled; Guest Zone Wireless Radio: Disabled; Guest Zone Network Name (SSID): dlink-5GHz-guest; Guest Zone Security: Disabled
- LAN COMPUTERS:** Table with columns: MAC Address, IP Address, Name (if any). Row 1: cc:52:af:49:e6:9c, 192.168.0.100, 07869PCWIN7E
- IGMP MULTICAST MEMBERSHIPS:** Table with columns: IPv4 Multicast Group Address, IPv6 Multicast Group Address

Logs

The router automatically logs (records) events of possible interest in its internal memory. If there isn't enough internal memory for all events, logs of the oldest events are deleted first and replaced with logs of the most recent events. The Logs option allows you to view the router logs. You can define what types of events you want to view and the level of the events to view. This router also has external Syslog Server support so you can send the log files to a computer on your network that is running a Syslog utility.

Log Options: You can select the types of messages that you want to display from the log. System Activity, Debug Information, Attacks, Dropped Packets, and Notice messages can be selected. Click **Apply Log Settings Now** to activate your settings.

Refresh: Updates the log details on the screen so it displays any recent activity.

First Page: Click to go to the first page.

Last Page: Click to go to the last page.

Previous: Click to go back one page.

Next: Click to go to the next page.

Clear: Clears all of the log contents.

Email Now: This option will send a copy of the router log to the email address configured in the **Tools > Email Settings** screen.

Save Log: This option will save the router log to a file on your computer.

The screenshot shows the D-Link DIR-860L web interface. The main content area is titled 'VIEW LOG' and contains the following sections:

- VIEW LOG:** A text box stating 'The View Log displays the activities occurring on the router.' Below it are two buttons: 'Save Settings' and 'Don't Save Settings'.
- SAVE LOG FILE:** A section with the text 'Save Log File To Local Hard Drive.' and a 'Save' button.
- LOG TYPE & LEVEL:** A section with radio buttons for 'Log Type' (System, Firewall & Security, Router Status) and 'Log Level' (Critical, Warning, Information). 'System' and 'Information' are selected.
- LOG FILES:** A section with navigation buttons: 'First Page', 'Last Page', 'Previous', 'Next', 'Clear', and 'Link To Email Log Settings'. Below the buttons is a table with 8 log entries.

Time	Message
Sat Jan 1 00:40:42 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:40:26 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:40:18 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:40:14 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:38:09 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:37:37 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:37:21 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:37:13 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:37:09 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:35:05 2000	DHCP: Client send DISCOVER.

On the right side of the interface, there is a 'Helpful Hints...' section with several bullet points providing additional information and instructions.

Statistics

The screen below displays the **Traffic Statistics**. Here you can view the amount of packets that pass through the DIR-860L on both the WAN, LAN ports, and the wireless segments. The traffic counter will reset if the device is rebooted.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes 'DIR-860L //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar contains 'DEVICE INFO', 'LOGS', 'STATISTICS', 'INTERNET SESSIONS', 'WIRELESS', 'ROUTING', 'IPv6', and 'IPv6 ROUTING'. The main content area is titled 'TRAFFIC STATISTICS' and includes a description: 'Traffic Statistics displays Receive and Transmit packets passing through the device.' Below this are 'Refresh Statistics' and 'Reset Statistics' buttons. The statistics are organized into four sections:

LAN STATISTICS			
Sent :	7279	Received :	9975
TX Packets Dropped :	0	RX Packets Dropped :	0
Collisions :	0	Errors :	0

WAN STATISTICS			
Sent :	7356	Received :	9974
TX Packets Dropped :	0	RX Packets Dropped :	0
Collisions :	0	Errors :	0

WIRELESS STATISTICS - 2.4GHZ BAND			
Sent :	858	Received :	0
TX Packets Dropped :	0	RX Packets Dropped :	0
Collisions :	0	Errors :	0

WIRELESS STATISTICS - 5GHZ BAND			
Sent :	857	Received :	0
TX Packets Dropped :	0	RX Packets Dropped :	0
Collisions :	0	Errors :	0

The right sidebar contains 'Helpful Hints...' with a bullet point: 'This is a summary displaying the number of packets that have passed between the Internet and the LAN since the router was last initialized.' and a 'More...' link.

Internet Sessions

The Internet Sessions page displays full details of active Internet sessions through your router. An Internet session is a conversation between a program or application on a LAN-side computer and a program or application on a WAN-side computer.

The screenshot shows the D-Link DIR-860L web interface. At the top, it displays 'Product Page : DIR-860', 'Hardware Version : A1', and 'Firmware Version : 1.00'. The D-Link logo is prominently featured. Below the logo is a navigation menu with tabs for 'DIR-860L //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The 'STATUS' tab is selected, and the 'INTERNET SESSIONS' sub-tab is active. The main content area shows a heading 'INTERNET SESSIONS' and a description: 'This page displays Source and Destination sessions passing through the device.' Below this is a 'Refresh' button. A table header is visible with columns for 'IP', 'TCP Count', and 'UDP Count'. On the right side, there is a 'Helpful Hints...' section with a bullet point: 'This is a list of all active conversations between WAN computers and LAN computers.' and a 'More...' link. At the bottom of the interface, the word 'WIRELESS' is displayed.

Wireless

The wireless client table displays a list of current connected wireless clients. This table also displays the connection time and MAC address of the connected wireless clients.

DEVICE INFO	<p>CONNECTED WIRELESS CLIENT LIST</p> <p>View the wireless clients that are connected to the router. (A client might linger in the list for a few minutes after an unexpected disconnect.)</p> <hr/> <p>NUMBER OF WIRELESS CLIENTS - 2.4GHZ BAND : 0</p> <table border="1"> <thead> <tr> <th>MAC Address</th> <th>IP Address</th> <th>Mode</th> <th>Rate (Mbps)</th> <th>Signal (%)</th> </tr> </thead> <tbody> <tr> <td colspan="5"> </td> </tr> </tbody> </table> <hr/> <p>NUMBER OF WIRELESS CLIENTS - 5GHZ BAND : 0</p> <table border="1"> <thead> <tr> <th>MAC Address</th> <th>IP Address</th> <th>Mode</th> <th>Rate (Mbps)</th> <th>Signal (%)</th> </tr> </thead> <tbody> <tr> <td colspan="5"> </td> </tr> </tbody> </table>	MAC Address	IP Address	Mode	Rate (Mbps)	Signal (%)						MAC Address	IP Address	Mode	Rate (Mbps)	Signal (%)						<p>Helpful Hints...</p> <ul style="list-style-type: none"> This is a list of all wireless clients that are currently connected to your wireless router. More...
MAC Address		IP Address	Mode	Rate (Mbps)	Signal (%)																	
MAC Address		IP Address	Mode	Rate (Mbps)	Signal (%)																	
LOGS																						
STATISTICS																						
INTERNET SESSIONS																						
WIRELESS																						
ROUTING																						
IPv6																						
IPv6 ROUTING																						

WIRELESS

Routing

This page will display your current routing table.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes the D-Link logo and tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar contains a menu with options: DEVICE INFO, LOGS, STATISTICS, INTERNET SESSIONS, WIRELESS, ROUTING (selected), IPv6, and IPv6 ROUTING. The main content area is titled "ROUTING" and "Routing Table", with a sub-header "ROUTING TABLE". Below this is a table with the following data:

Destination	Gateway	Genmask	Metric	Iface	Creator
192.168.7.0	0.0.0.0	255.255.255.0	0	LAN	SYSTEM
192.168.0.0	0.0.0.0	255.255.255.0	0	LAN	SYSTEM
239.0.0.0	0.0.0.0	255.0.0.0	0	LAN	SYSTEM

On the right side of the interface, there is a "Helpful Hints..." section with the following text:

- This is a list of all routing rules on router.
- [More...](#)

The bottom of the page features a "WIRELESS" section header.

IPv6

The IPv6 page displays a summary of the Router's IPv6 settings and lists the IPv6 address and host name of any IPv6 clients.

D-Link®								
DIR-860L //	SETUP	ADVANCED	TOOLS	STATUS	SUPPORT			
DEVICE INFO	IPv6 NETWORK INFORMATION				Helpful Hints... <ul style="list-style-type: none"> All of your WAN and LAN connection details are displayed here. More... 			
LOGS	All of your IPv6 Internet and network connection details are displayed on this page.							
STATISTICS	IPv6 CONNECTION INFORMATION							
INTERNET SESSIONS	IPv6 Connection Type : Link-Local IPv6 Default Gateway : None LAN IPv6 Link-Local Address : fe80::2de:faff:fe1a:100 /64							
WIRELESS	LAN IPv6 COMPUTERS							
<u>ROUTING</u> IPv6 IPv6 ROUTING	<table border="1"> <thead> <tr> <th>IPv6 Address</th> <th>Name(if any)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>					IPv6 Address	Name(if any)	
IPv6 Address	Name(if any)							
WIRELESS								

IPv6 Routing

This page displays the IPV6 routing details configured for your router.

The screenshot shows the D-Link web interface for a DIR-860L router. The top navigation bar includes 'DIR-860L', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration sections, with 'IPv6 ROUTING' selected. The main content area is titled 'IPv6 ROUTING' and contains the text: 'This page displays IPV6 routing details configured for your router.' Below this is an 'IPv6 ROUTING TABLE' with the following columns: Destination IP, Gateway, Metric, and Interface. The table is currently empty. On the right side, there is a 'Helpful Hints...' section with a bullet point: 'This is a list of all IPV6 routing rules on router.' and a link for 'More...'. At the bottom of the interface, there is a 'WIRELESS' section header.

Support

The Support pages let you jump to descriptions of the settings and their functions.

The screenshot displays the D-Link DIR-860L web interface. At the top, the D-Link logo is visible. Below it, a navigation bar contains tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The SUPPORT tab is selected. On the left side, a vertical menu lists the main sections: MENU, SETUP, ADVANCED, TOOLS, and STATUS. The main content area is titled 'SUPPORT MENU' and contains several sections of links:

- SUPPORT MENU**
 - [Setup](#)
 - [Advanced](#)
 - [Tools](#)
 - [Status](#)
- SETUP HELP**
 - [Internet](#)
 - [Wireless Settings](#)
 - [Network Settings](#)
 - [Storage](#)
 - [Media Server](#)
 - [IPv6](#)
 - [MYDLINK SETTINGS](#)
- ADVANCED HELP**
 - [Virtual Server](#)
 - [Port Forwarding](#)
 - [Application Rules](#)
 - [QoS Engine](#)
 - [Network Filter](#)
 - [Access Control](#)
 - [Website Filter](#)
 - [Inbound Filter](#)
 - [Firewall Settings](#)
 - [Routing](#)
 - [Advanced Wireless](#)
 - [Wi-Fi Protected Setup](#)
 - [Advanced Network](#)
 - [Guest Zone](#)
 - [IPv6 Firewall](#)
 - [IPv6 Routing](#)
- TOOLS HELP**
 - [Device Administration](#)
 - [Time](#)
 - [Syslog](#)
 - [Email Settings](#)
 - [System](#)
 - [Firmware](#)
 - [Dynamic DNS](#)
 - [System Check](#)
 - [Schedules](#)
- STATUS HELP**
 - [Device Info](#)
 - [Logs](#)
 - [Statistics](#)
 - [Internet Sessions](#)
 - [Wireless](#)
 - [Routing](#)
 - [IPv6](#)
 - [IPv6 Routing](#)

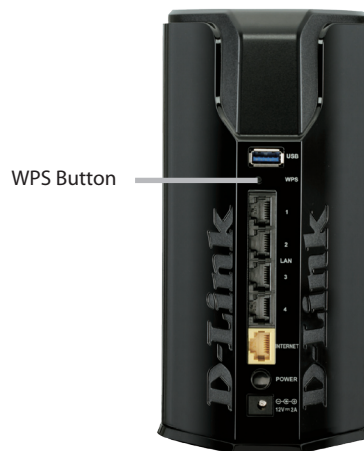
At the bottom of the page, the word 'WIRELESS' is displayed in a dark bar, and a copyright notice reads: Copyright © 2013 D-Link Corporation. All rights reserved.

Connect a Wireless Client to your Router

WPS Button

The easiest way to securely connect your wireless devices to the router is using WPS (Wi-Fi Protected Setup). Most wireless devices such as wireless adapters, media players, Blu-ray DVD players, wireless printers and cameras will have a WPS button (or a software utility with WPS) that you can press to connect to the DIR-860L router. Please refer to the user manual for the wireless device you want to connect to make sure you understand how to enable WPS. Once ready, follow the steps below:

Step 1 - Press the WPS button on the DIR-860L for about 1 second. The Internet LED on the front will start to blink.



Step 2 - Within 120 seconds, press the WPS button on your wireless client (or launch the software utility and start the WPS process).

Step 3 - Allow up to 1 minute while your connection is configured. Once the Internet light stops blinking, you will be connected and your wireless connection will be secure with WPA2.

Windows® 8

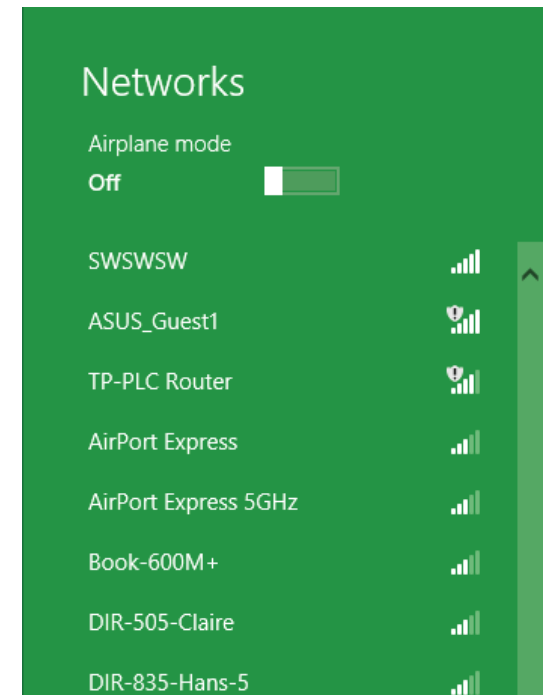
WPA/WPA2

It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key (Wi-Fi password) being used.

To join an existing network, locate the wireless network icon in the taskbar, next to the time display.

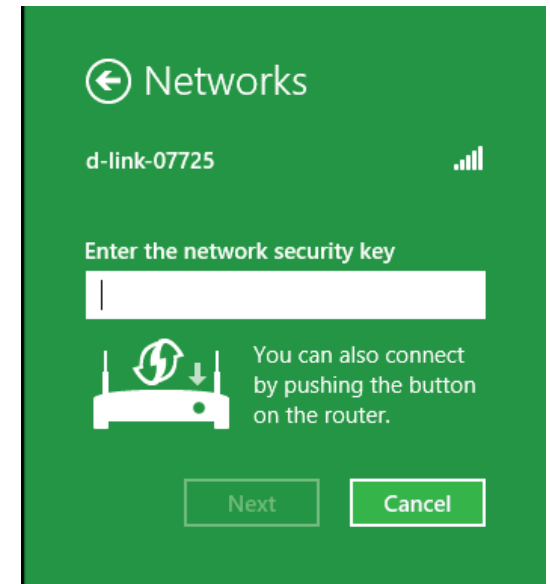


Clicking on this icon will display a list of wireless networks which are within connecting proximity of your computer. Select the desired network by clicking on the network name.

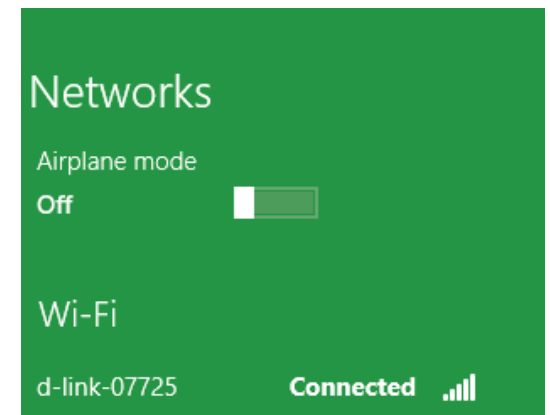


You will then be prompted to enter the network security key (Wi-Fi password) for the wireless network. Enter the password into the box and click **Next**.

If you wish to use Wi-Fi Protected Setup (WPS) to connect to the router, you can also press the WPS button on your router at the point to enable the WPS function.



When you have established a successful connection a wireless network, the word **Connected** will appear next to the name of the network to which you are connected.



Windows® 7

WPA/WPA2

It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or password being used.

1. Click on the wireless icon in your system tray (lower-right corner).



Wireless Icon

2. The utility will display any available wireless networks in your area.

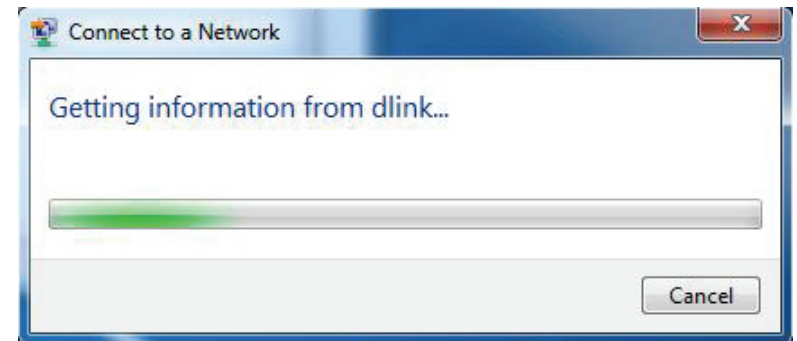


3. Highlight the wireless connection with the Wi-Fi name (SSID) you would like to connect to and click the **Connect** button.

If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the Networking Basics section in this manual for more information.

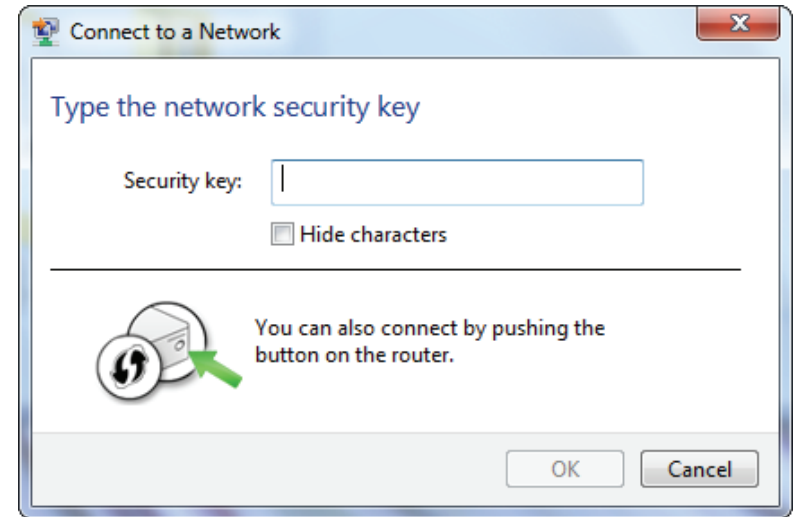


4. The following window appears while your computer tries to connect to the router.



5. Enter the same security key or passphrase (Wi-Fi password) which was set for your router and click **Connect**. You can also connect by pushing the WPS button on the router.

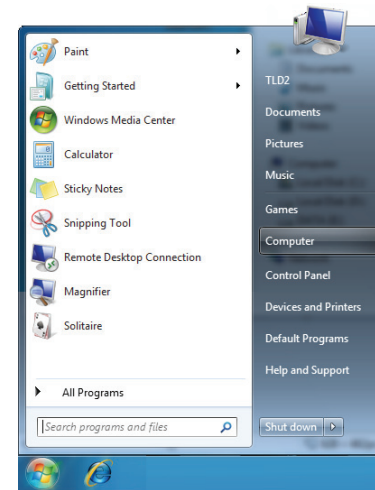
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.



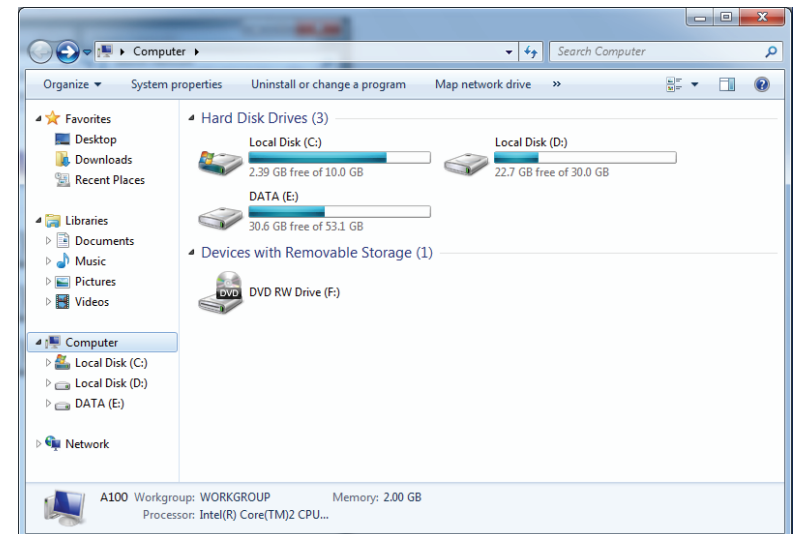
WPS

The WPS feature of the DIR-860L can be configured using Windows® 7. Carry out the following steps to use Windows® 7 to configure the WPS feature:

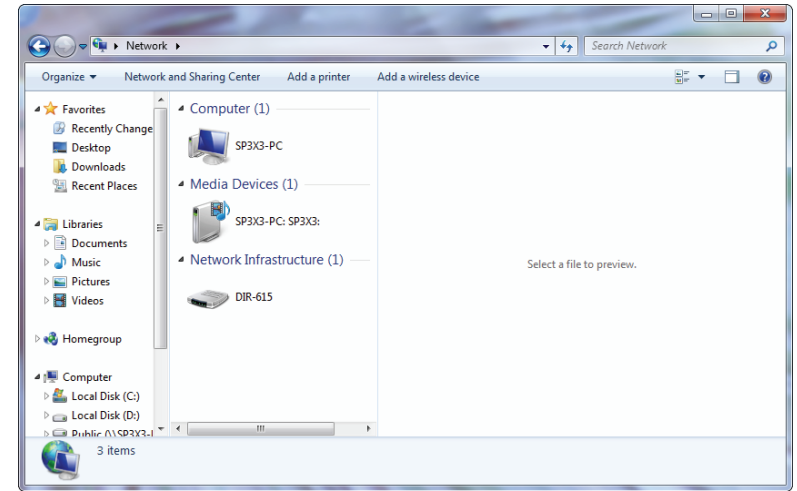
1. Click the **Start** button and select **Computer** from the Start menu.



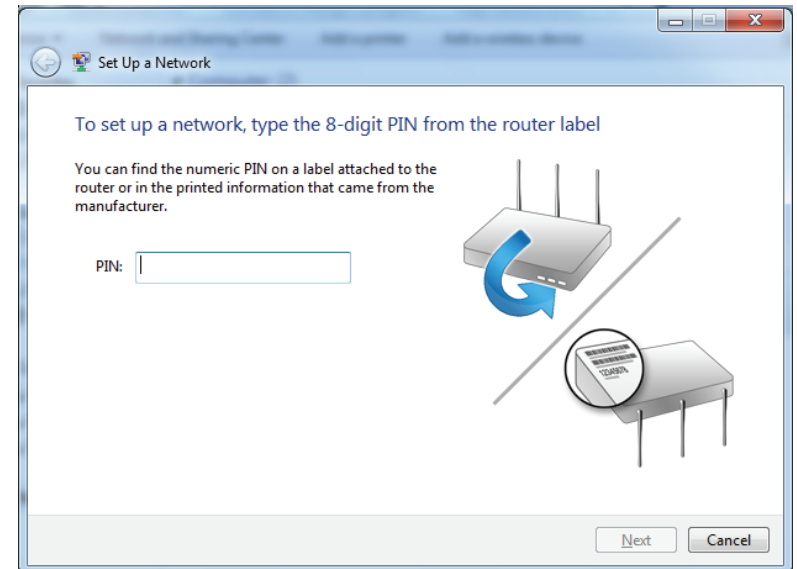
2. Click **Network** on the left side.



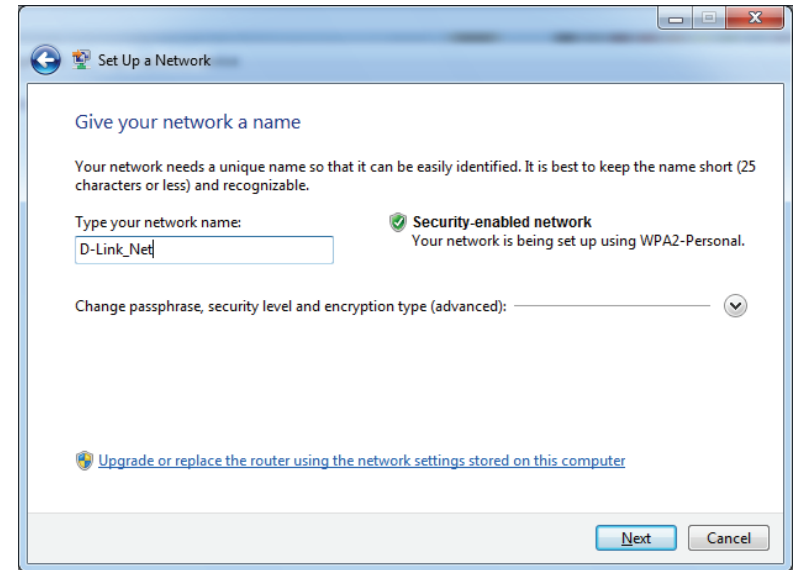
3. Double-click **DIR-860L**.



4. Input the WPS PIN number (displayed in the WPS window on the **Setup > Wireless Setup** menu in the Router's Web UI) and click **Next**.

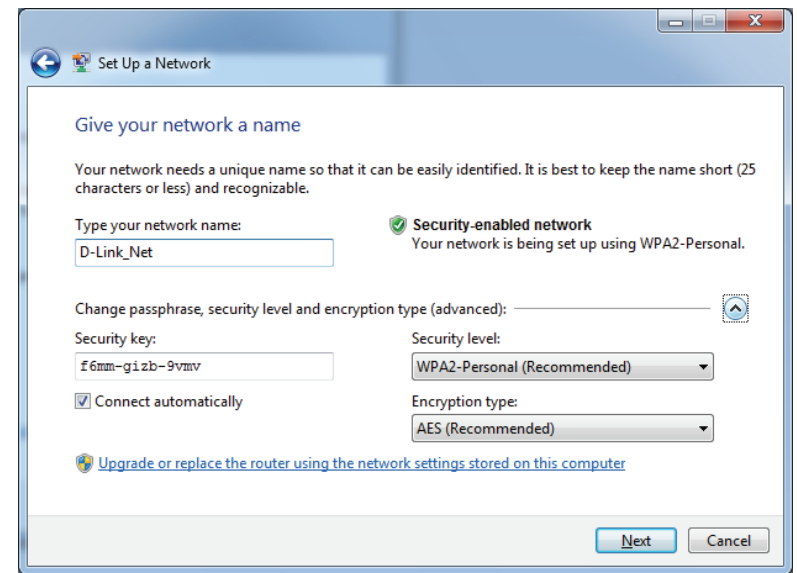


5. Type a name to identify the network.



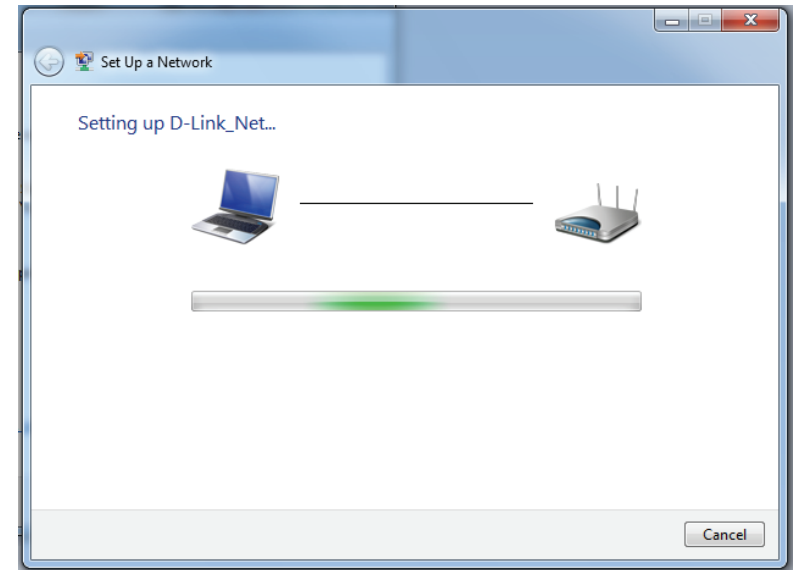
6. To configure advanced settings, click the  icon.

Click **Next** to continue.



7. The following window appears while the Router is being configured.

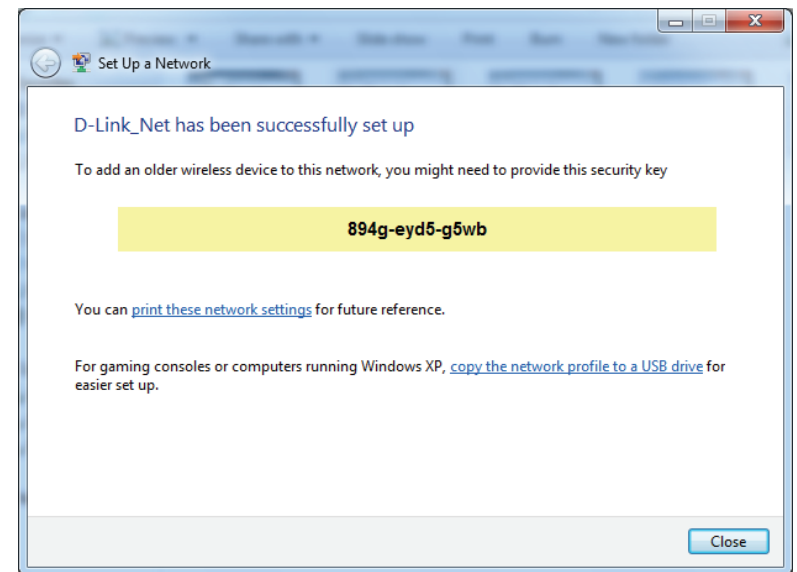
Wait for the configuration to complete.



8. The following window informs you that WPS on the router has been set up successfully.

Make a note of the security key as you may need to provide this security key if adding an older wireless device to the network in the future.

9. Click **Close** to complete WPS setup.



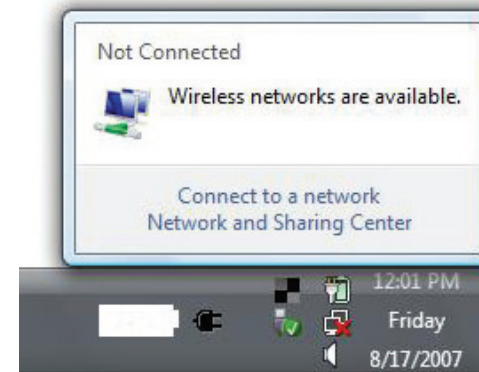
Windows Vista®

Windows Vista® users may use the built-in wireless utility. If you are using another utility, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities will have a “site survey” option similar to the Windows Vista® utility as seen below.

If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

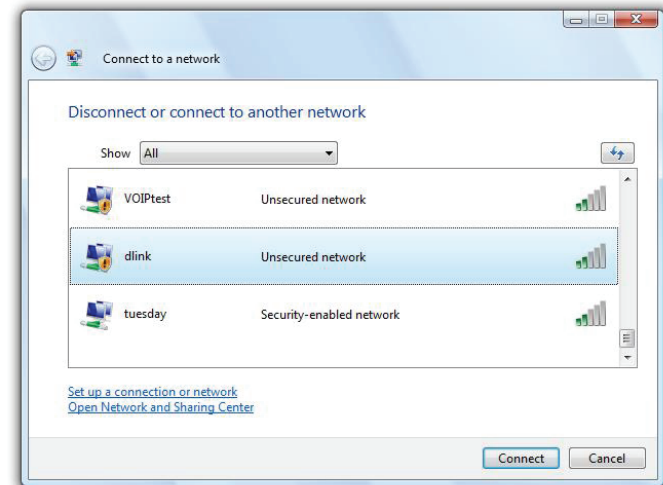
or

Right-click on the wireless computer icon in your system tray (lower-right corner next to the time). Select **Connect to a network**.



The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) and click the **Connect** button.

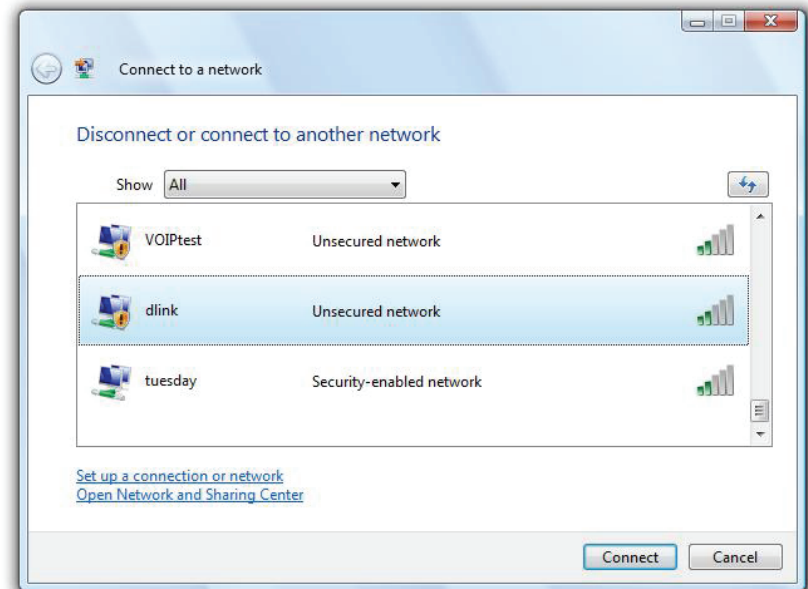
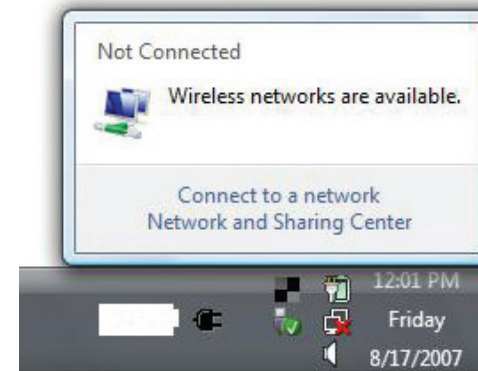
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



WPA/WPA2

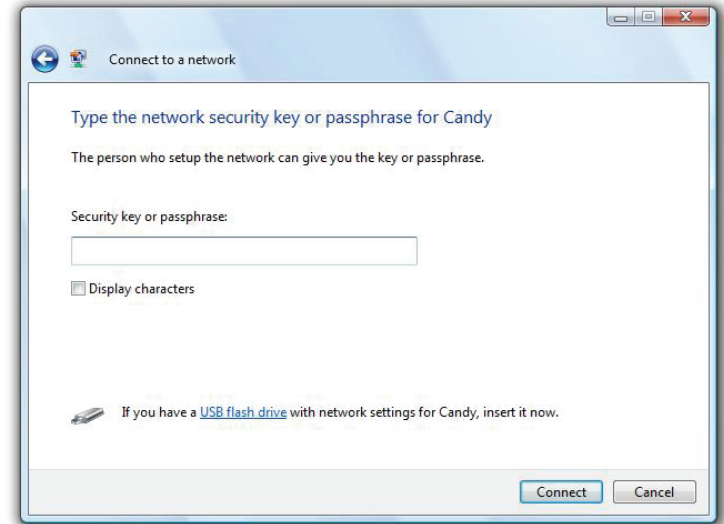
It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.

1. Open the Windows Vista® Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **Connect to a network**.
2. Highlight the Wi-Fi name (SSID) you would like to connect to and click **Connect**.



3. Enter the same security key or passphrase (Wi-Fi password) that was set for your router and click **Connect**.

It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.



WPS/WCN 2.0

The router supports Wi-Fi protection, referred to as WCN 2.0 in Windows Vista®. The following instructions for setting this up depends on whether you are using Windows Vista® to configure the router or third party software.

When you first set up the router, Wi-Fi protection is disabled and unconfigured. To enjoy the benefits of Wi-Fi protection, the router must be both enabled and configured. There are three basic methods to accomplish this: use Windows Vista's built-in support for WCN 2.0, use software provided by a third party, or manually configure.

If you are running Windows Vista®, log into the router and click the **Enable** checkbox in the **Basic > Wireless** section. Use the Current PIN that is displayed on the **Advanced > Wi-Fi Protected Setup** section or choose to click the **Generate New PIN** button or **Reset PIN to Default** button.



If you are using third party software to set up Wi-Fi Protection, carefully follow the directions. When you are finished, proceed to the next section to set up the newly-configured router.

Windows® XP

Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another utility, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities will have a “site survey” option similar to the Windows® XP utility as seen below.

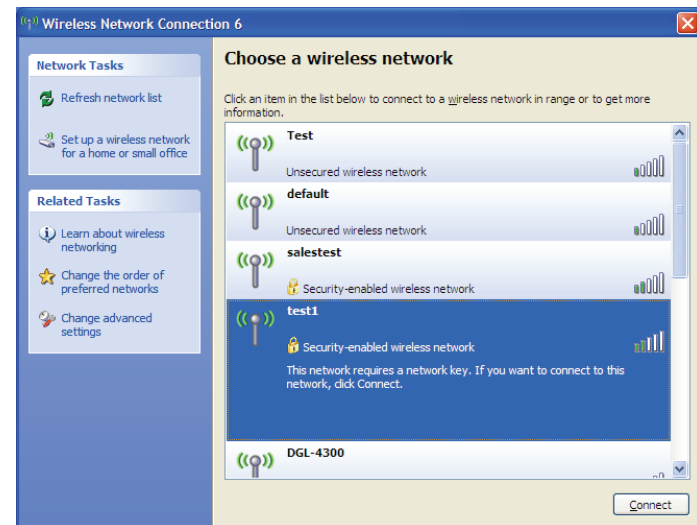
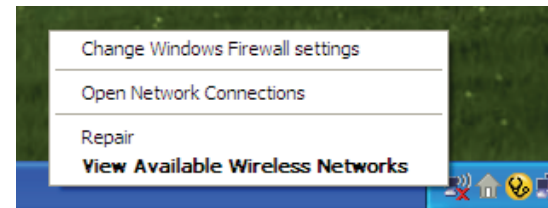
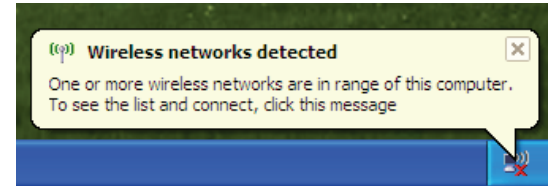
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

or

Right-click on the wireless computer icon in your system tray (lower-right corner next to the time display). Select **View Available Wireless Networks**.

The utility will display any available wireless networks in your area. Click on a Wi-Fi network (displayed using the SSID) and click the **Connect** button.

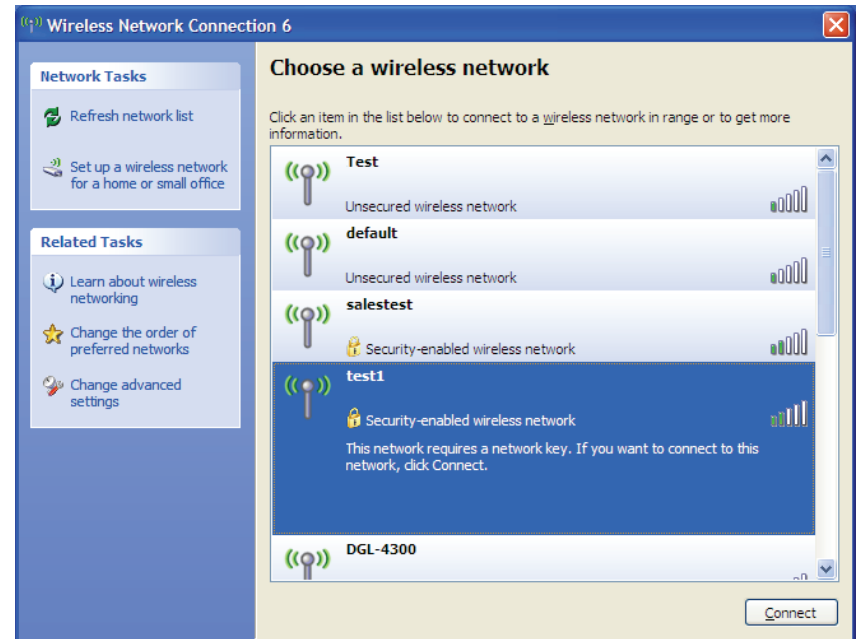
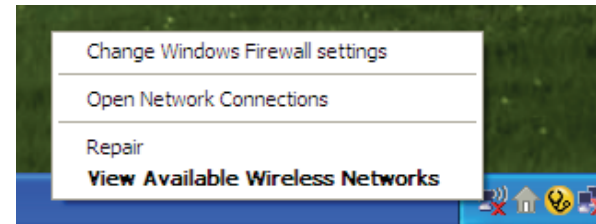
If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



WPA/WPA2

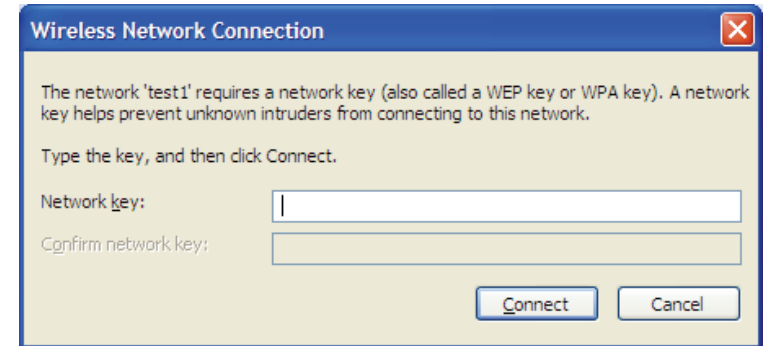
It is recommended to enable WPA on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA key being used.

1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.
2. Highlight the Wi-Fi network (SSID) you would like to connect to and click **Connect**.



3. The **Wireless Network Connection** box will appear. Enter the WPA-PSK Wi-Fi password and click **Connect**.

It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WPA-PSK settings are correct. The Wi-Fi password must be exactly the same as on the wireless router.



Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DIR-860L. Read the following descriptions if you are having problems. The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.

1. Why can't I access the web-based configuration utility?

When entering the IP address of the D-Link router (192.168.0.1 for example), you are not connecting to a website nor do you have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

- Make sure you have an updated Java-enabled web browser. We recommend the following:
 - Microsoft Internet Explorer® 7 and higher
 - Mozilla Firefox 3.5 and higher
 - Google™ Chrome 8 and higher
 - Apple Safari 4 and higher
- Verify physical connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different cable or connect to a different port on the device if possible. If the computer is turned off, the link light may not be on.
- Disable any Internet security software running on the computer. Software firewalls such as Zone Alarm, Black Ice, Sygate, Norton Personal Firewall, and Windows® XP firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

- Configure your Internet settings:
 - Go to **Start > Settings > Control Panel**. Double-click the **Internet Options** icon. From the **Security** tab, click the button to restore the settings to their defaults.
 - Click the **Connection** tab and set the dial-up option to Never Dial a Connection. Click the LAN Settings button. Make sure nothing is checked. Click **OK**.
 - Go to the **Advanced** tab and click the button to restore these settings to their defaults. Click **OK** three times.
 - Close your web browser (if open) and open it.
- Access the web management. Open your web browser and enter the IP address of your D-Link router in the address bar. This should open the login page for your web management.
- If you still cannot access the configuration, unplug the power to the router for 10 seconds and plug back in. Wait 30 seconds and try accessing the configuration. If you have multiple computers, try connecting using a different computer.

2. What can I do if I forgot my password?

If you forgot your password, you must reset your router. Unfortunately this process will change all your settings back to the factory defaults.

To reset the router, locate the reset button (hole) on the rear panel of the unit. With the router powered on, use a paperclip to hold the button down for 10 seconds. Release the button and the router will go through its reboot process. Wait about 30 seconds to access the router. The default IP address is 192.168.0.1. When logging in, the username is **admin** and leave the password box empty.

3. Why can't I connect to certain sites or send and receive emails when connecting through my router?

If you are having a problem sending or receiving email, or connecting to secure sites such as eBay, banking sites, and Hotmail, we suggest lowering the MTU in increments of ten (Eg. 1492, 1482, 1472, etc).

To find the proper MTU Size, you'll have to do a special ping of the destination you're trying to go to. A destination could be another computer, or a URL.

- Click on **Start** and then click **Run**.
- Windows® 95, 98, and Me users type in **command** (Windows® NT, 2000, XP, Vista®, and 7 users type in **cmd**) and press **Enter** (or click **OK**).
- Once the window opens, you'll need to do a special ping. Use the following syntax:

ping [url] [-f] [-l] [MTU value]

Example: **ping yahoo.com -f -l 1472**

```
C:\>ping yahoo.com -f -l 1482
Pinging yahoo.com [66.94.234.13] with 1482 bytes of data:
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping yahoo.com -f -l 1472
Pinging yahoo.com [66.94.234.13] with 1472 bytes of data:
Reply from 66.94.234.13: bytes=1472 time=93ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=109ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=125ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=203ms TTL=52
Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 93ms, Maximum = 203ms, Average = 132ms
C:\>
```

You should start at 1472 and work your way down by 10 each time. Once you get a reply, go up by 2 until you get a fragmented packet. Take that value and add 28 to the value to account for the various TCP/IP headers. For example, if 1452 was the proper value, the actual MTU size would be 1480, which is the optimum for the network you're working with (1452+28=1480).

Once you find your MTU, you can now configure your router with the proper MTU size.

To change the MTU rate on your router follow the steps below:

- Open your browser, enter the IP address of your router (192.168.0.1) and click **OK**.
- Enter your username (admin) and password (blank by default). Click **OK** to enter the web configuration page for the device.
- Click on **Setup** and then click **Manual Configure**.
- To change the MTU enter the number in the MTU field and click **Save Settings** to save your settings.
- Test your email. If changing the MTU does not resolve the problem, continue changing the MTU in increments of ten.

Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. Strictly adhering to the IEEE standard, the D-Link wireless family of products will allow you to securely access the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking delivers.

A wireless local area network (WLAN) is a cellular computer network that transmits and receives data with radio signals instead of wires. Wireless LANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

Under many circumstances, it may be desirable for mobile network devices to link to a conventional Ethernet LAN in order to use servers, printers or an Internet connection supplied through the wired LAN. A Wireless Router is a device used to provide this link.

What is Wireless?

Wireless, or Wi-Fi technology is a way of connecting your computer to the network without using wires. Wi-Fi uses radio frequencies to connect wirelessly, so you have the freedom to connect computers anywhere in your home or office to your network.

Why D-Link Wireless?

D-Link is the worldwide leader and an award winning designer, developer, and manufacturer of networking products. D-Link delivers the performance you need at a price you can afford. D-Link offers all the products you need to build your network.

How does wireless work?

Wireless works similarly to how cordless phones work, using radio signals to transmit data from one point to another. In order to access a network wirelessly you must be within the wireless network range area. There are two different types of wireless networks: Wireless Local Area Network (WLAN), and Wireless Personal Area Network (WPAN).

Wireless Local Area Network (WLAN)

In a wireless local area network, a device called an Access Point (AP) connects computers to the network. The access point has a small antenna attached to it, which allows it to transmit data back and forth using radio signals. With an indoor access point such as the DIR-860L, the signal can travel up to 300 feet. With an outdoor access point the signal can reach up to 30 miles to serve places like manufacturing plants, industrial locations, school campuses, airports, golf courses, and many other outdoor venues.

Wireless Personal Area Network (WPAN)

Bluetooth is the industry standard wireless technology used for WPAN. Bluetooth devices in WPAN operate within a range of up to 30 feet.

Compared to WLAN, the speed and wireless operation range are both reduced when using WPAN, however WPAN doesn't use less power, which makes it ideal for personal devices, such as mobile phones, PDAs, headphones, laptops, speakers, and other devices that operate on batteries.

Who uses wireless?

Wireless technology has become increasingly popular in recent years, whether it's for home, office, or business, D-Link has a wireless solution.

Home

- Gives everyone at home broadband access
- Surf the web, check email, instant message, etc. from anywhere in your home
- Gets rid of the cables around the house
- Simple and easy to use

Small Office and Home Office

- Reduced cost of setting up a network
- Remotely access your office network from home
- Share Internet connections and printers with multiple computers
- No need to dedicate office space

Where is wireless used?

Wireless technology is expanding everywhere, not just at home or in the office. People like the freedom of mobility and it's becoming so popular that more and more public facilities now provide wireless access. A wireless connection in public places is usually called a "hotspot".

Using a D-Link Cardbus Adapter with your laptop, you can access the hotspot to connect to Internet from remote locations such as Airports, Hotels, Coffee Shops, Libraries, Restaurants, and Convention Centers.

A wireless network is simple to setup, but if you're installing one for the first time it could be quite a task if you do not know where to start. That's why we've put together a few setup steps and tips to help you through the process of setting up a wireless network.

Tips

Here are a few things to keep in mind when you install a wireless network.

Centralize your router or access point

Make sure you place the router/access point in a centralized location within your network for the best performance. Try to place the router/access point as high as possible in the room, so the signal gets dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal in order to extend the range.

Eliminate Interference

Place home appliances such as cordless telephones, microwaves, and televisions as far away as possible from the router/access point. This can significantly reduce any interference that these appliances might cause since they operate on same frequency.

Security

Don't let neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the router's WPA or WEP security feature. Refer to product manual for detailed information on how to set up this feature.

Wireless Modes

There are two basic modes for wireless networking:

- **Infrastructure** – All wireless clients will connect to an access point or wireless router.
- **Ad-Hoc** – Devices connect directly to one another, for peer-to-peer communication, using wireless network adapters on each computer, such as two computers with wireless adaptors.

An Infrastructure network contains an Access Point or wireless router. All wireless devices, or clients, will connect to the wireless router or access point in order to access the internet or other network resources.

An Ad-Hoc network contains only clients, such as laptops with wireless cardbus adapters. All adapters must be in Ad-Hoc mode to communicate.

Networking Basics

Check your IP address

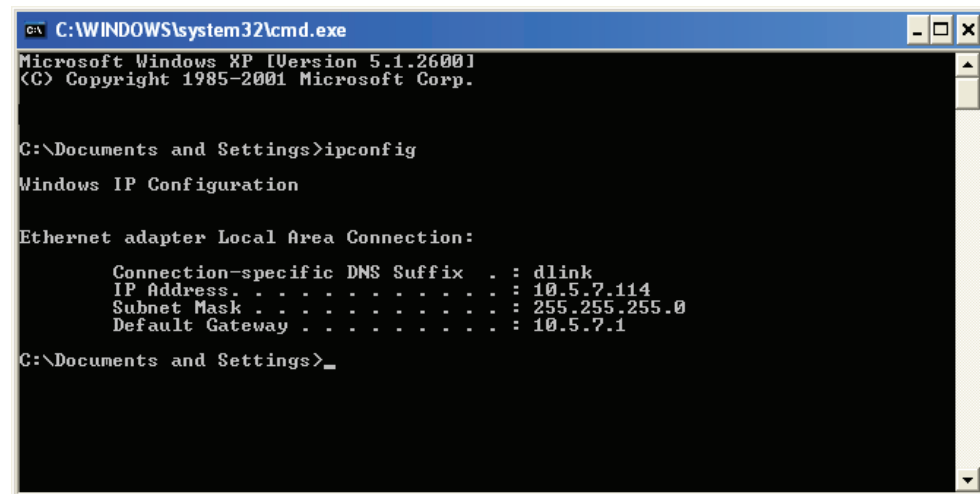
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

Click on **Start > Run**. In the run box type **cmd** and click **OK**. (Windows® 7/Vista® users type **cmd** in the **Start Search** box.)

At the prompt, type **ipconfig** and press **Enter**.

This will display the IP address, subnet mask, and the default gateway of your adapter.

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your router. Some firewall software programs may block a DHCP request on newly installed adapters.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : dlink
    IP Address . . . . . : 10.5.7.114
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.5.7.1

C:\Documents and Settings>_
```

Statically Assign an IP address

If you are not using a DHCP capable gateway/router, or you need to assign a static IP address, please follow the steps below:

- Step 1**
- Windows® 7 - Click on **Start > Control Panel > Network and Internet > Network and Sharing Center**.
- Windows Vista® - Click on **Start > Control Panel > Network and Internet > Network and Sharing Center > Manage Network Connections**.
- Windows® XP - Click on **Start > Control Panel > Network Connections**.
- Windows® 2000 - From the desktop, right-click **My Network Places > Properties**.

Step 2

Right-click on the **Local Area Connection** which represents your network adapter and select **Properties**.

Step 3

Highlight **Internet Protocol (TCP/IP)** and click **Properties**.

Step 4

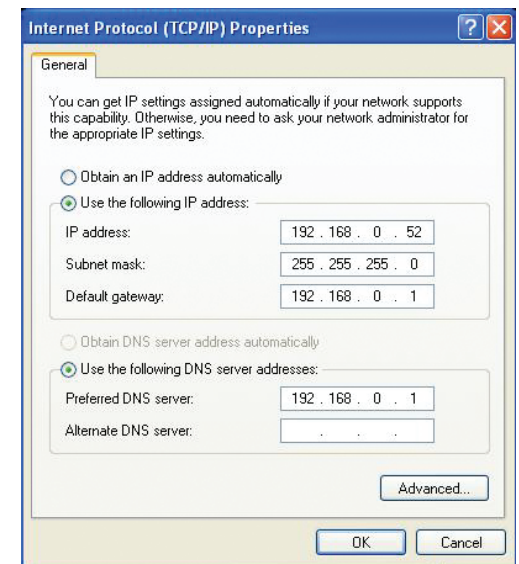
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

Example: If the router's LAN IP address is 192.168.0.1, make your IP address 192.168.0.X where X is a number between 2 and 99. Make sure that the number you choose is not in use on the network. Set the Default Gateway the same as the LAN IP address of your router (I.E. 192.168.0.1).

Set Primary DNS the same as the LAN IP address of your router (192.168.0.1). The Secondary DNS is not needed or you may enter a DNS server from your ISP.

Step 5

Click **OK** twice to save your settings.



Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DIR-860L offers the following types of security:

- WPA2 (Wi-Fi Protected Access 2)
- WPA (Wi-Fi Protected Access)
- WPA2-PSK (Pre-Shared Key)
- WPA-PSK (Pre-Shared Key)

What is WPA?

WPA (Wi-Fi Protected Access), is a Wi-Fi standard that was designed to improve the security features of WEP (Wired Equivalent Privacy).

The 2 major improvements over WEP:

- Improved data encryption through the Temporal Key Integrity Protocol (TKIP). TKIP scrambles the keys using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with. WPA2 is based on 802.11i and uses Advanced Encryption Standard (AES) instead of TKIP.
- User authentication (which was generally missing in WEP) through the extensible authentication protocol (EAP). WEP regulates access to a wireless network based on a computer's hardware-specific MAC address, which is relatively simple to be sniffed out and stolen. EAP is built on a more secure public-key encryption system to ensure that only authorized network users can access the network.

WPA-PSK/WPA2-PSK uses a passphrase or key to authenticate your wireless connection. The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. This key must be the exact same key entered on your wireless router or access point.

WPA/WPA2 incorporates user authentication through the Extensible Authentication Protocol (EAP). EAP is built on a more secure public key encryption system to ensure that only authorized network users can access the network.

Technical Specifications

Device Interfaces

- 802.11 a/b/g/n/draft ac wireless LAN
- Four 10/100/1000 Gigabit LAN ports
- 10/100/1000 Gigabit WAN port
- USB 3.0 port

Antenna Types

- Internal antennas

Standards

- IEEE 802.11ac (draft)
- IEEE 802.11n
- IEEE 802.11g
- IEEE 802.11b
- IEEE 802.11a
- IEEE 802.3
- IEEE 802.3u

Security

- WPA™ - Personal/Enterprise
- WPA2™ - Personal/Enterprise
- Wi-Fi Protected Setup (WPS) PIN/PBC

Power

- Input: 100 to 240 V AC, 50/60 Hz
- Output: 12 V DC, 2 A

USB Port Power

- 5 V / 0.9 A

Operating Temperature

- 0 °C to 40 °C (32 °F to 104 °F)

Humidity

- 95% maximum (non-condensing)

Safety & Emissions

- FCC Class B
- CE Class B
- C-Tick
- DLNA
- IPv6 Ready
- Wi-Fi Protected Setup (WPS)
- Wi-Fi Multimedia (WMM)
- Compatible with Windows 8

Dimensions

- L = 10.23 cm (4.03 inches)
- W = 12.33 cm (4.85 inches)
- H = 21.7 cm (8.54 inches)

Warranty

- 2 years

1 Maximum wireless signal rate derived from IEEE Standard 802.11a, 802.11g, and 802.11n specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate. Environmental factors will adversely affect wireless signal range.

2 Frequency Range varies depending on country's regulation.

3 The DIR-860L does not include 5.25-5.35GHz & 5.47-5.725GHz in some regions.